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The impact of Cigarette Excise Tax Increases and Harmonisation in the East African Community

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of Masters in Commerce (Economics)

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DECLARATION

This work has not been previously submitted in whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in, this dissertation from the work, or works, of other people has been attributed, and has been cited and referenced.

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ABSTRACT

This paper proposes a model that can be used to predict the likely impacts of tobacco tax increases and harmonisation in the East African Community. The model has five sections, one for each EAC country. These sections consider different cigarette market segments based on tax or price differentials. The model can therefore calculate the likely effects of excise tax increases and harmonisation on the retail selling price of cigarettes, cigarette consumption, government revenue and industry revenue for each individual country and for the EAC as a whole.

Two Scenarios are presented in this paper. Scenario 1 explores an increase in the current excise tax rates and a harmonisation across the EAC of a uniform specific tax of UDS 0.60. A sensitivity analysis is conducted to assess the robustness of the assumptions in this scenario. Scenario 2 discusses the use of a mixed tax structure with a specific excise tax of USD 0.60 or an ad valorem excise tax of 40% of the retail selling price, whichever is higher. The advantages and disadvantages of a uniform specific excise tax and other tax structures such as tiered specific taxes, ad valorem taxes and mixed tax structures are explored. Factors such as administrative ease, predictability of revenue flows, inflation and income growth are discussed. A uniform specific tax is shown to be the most preferable excise tax structure, even over a mixed tax structure.

The results show that, with an assumed price elasticity of demand of -0.6, as excise tax is increased in the region, consumption decreases and government revenue increases. Scenario 1 shows a decrease in consumption by around 2.3 billion cigarettes, or 18%, compared to current consumption levels across the EAC of around 12.9 billion cigarettes. Scenario 2 shows a slightly higher decline in consumption of 2.7 billion cigarettes or 21%. In terms of government excise revenue, Scenario 1 shows an increase of around USD 140 million or 80% from the current government revenue of around USD 176 million across the EAC. The second scenario reveals an even greater increase of USD 173 million or 98%. These results show that excise tax increases and harmonisation will contribute to public health and financial objectives of governments in the region.

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Section 1 Introduction

The topic of Tobacco Control (TC) measures and their effects has become a well-documented discipline. The harmful effects of smoking cannot be denied. More than 40 years of epidemiological research has shown that smoking is damaging global health at an unprecedented level (Jha & Chaloupka, 2000). Disturbingly, the economics of TC in developing countries received little attention from researchers or policymakers before 1990. Thereafter, rapid globalisation created opportunities for multinational cigarette companies to diversify into the growing developing world (IARC, 2011). Against this background an empirical literature on the demand for tobacco in developing countries emerged. The focus area of much of this literature has been in the developing nations of Eastern Europe and Asia, with little focus on Africa (other than South Africa).

A 1999 World Bank report, *Curbing the Epidemic*, examines the effectiveness of TC interventions and concludes that both price measures such as taxes, and non-price measures such as media campaigns, smoking restrictions and advertising bans can reduce the demand for cigarettes. Non-price measures address health aims, put forward by the Ministry of Health (MoH) in national TC policy. These health objectives include decreases in smoking initiation and smoking intensity as well as increases in smoking cessation (Guindon et al., 2002). Price measures, on the other hand, address fiscal aims, put forward by the Ministry of Finance (MoF). These fiscal aims include increases in government revenue through increased excise tax levied on tobacco. This may further result in total tax increases via the sales tax. Tax increases like these have been found to be the single most effective intervention to reduce the demand for tobacco (Chaloupka et al., 2010b). If cigarette prices rise due to increased tobacco taxes then individuals who do not currently use tobacco products may refrain from starting, and therefore avoid addiction. Higher prices can also induce current smokers to consume less, persuade them to quit or prevent ex-users from starting again. In this way, fiscal objectives and health objectives are met simultaneously through pricing measures such as increased excise tax.

This paper will analyse the effect that tax and price increases have on smoking behaviour. It will review the effects of excise tax increases and harmonisation on cigarettes in the East African Community (EAC), a regional organisation comprising of Kenya, Tanzania, Uganda,

Burundi and Rwanda. The global literature on the effects of tax increases on the consumption of cigarettes is substantial, however, these studies are all but non-existent for individual countries in the EAC.

Efforts within countries to limit the consumption of tobacco must be seen in light of international TC policy, specifically the World Health Organisation (WHO) Framework Convention on Tobacco Control (FCTC), the first international health treaty negotiated under the auspices of the WHO (WHO, 2003). As the director general of the WHO stated in 1999 “tobacco related disease... is not a challenge confined to independent states. It is a global challenge” (Feldman & Bayer, 2011). All of the EAC countries have signed and ratified the FCTC and the enforcement of that treaty can only be accomplished by national governments. This paper is concerned mainly with article 6 of the FCTC which declares “each Party should take account of its national health objectives concerning TC and adopt or maintain, as appropriate, measures which may include: (a) implementing tax policies and, where appropriate, price policies, on tobacco products so as to contribute to the health objectives aimed at reducing tobacco consumption” (WHO, 2003). Different tax and price policies in the EAC will be reviewed, taking into consideration that these policies must take account of, among other things, inflation levels, income levels and administrative concerns (Chaloupka et al., 2010a). The EAC, a customs union, also provides the platform for regional co-operation in matters of TC. This paper will focus specifically on the effects of excise tax harmonisation on individual countries within the EAC and the region as a whole.

According to the literature one would expect that as excise taxes are raised, the price of cigarettes increase, leading to a decrease in the demand for cigarettes. The price elasticity of demand (ϵ_P) is estimated to be between -0.2 and -1.0 for developing countries (IARC, 2011). Cigarette demand is typically more elastic in developing countries compared to developed countries, given the much lower per capita income levels. A relatively inelastic ϵ_P of -0.6, the midpoint of the IARC range, means that on average, a 10% increase in the real price of cigarettes would reduce cigarette consumption by about 6% in low or middle income countries (LMIC). Jha and Chaloupka (2000) suggest that this figure is around 4% for high income countries. This thesis will use a sensitivity analysis to estimate the impact of different elasticities in the EAC as no price elasticity studies for tobacco have been done in the EAC to date.

The layout of the paper is as follows. Firstly an overview of TC and the EAC will be given with a focus on the interplay between the two. This will be followed by an explanation and presentation of the model. The model will show the possible effects of an increase in the

excise tax across all EAC countries and the knock-on effect this increase will have on the retail selling price, cigarette consumption, government revenue, and industry revenue. Lastly, a discussion of the results for each country and for the EAC region will be given, followed by a sensitivity analysis and brief policy recommendations.

1.1. Background of EAC

The East African Community (EAC) was originally founded in 1967, collapsed in 1977, and was revived on July 7, 2000. Originally only Kenya, Tanzania and Uganda were party to the EAC, but Burundi and Rwanda were later accepted in July 2009. All of the EAC countries are classified as low-income countries (LICs) according to the World Bank (World Bank, 2011). The United Nations (UN) further classify Burundi, Rwanda and Uganda as land-locked Least-Developed Countries (UN, 2010).

The geographical region encompassed by the East African Community (EAC) covers an area of 1.82 million square kilometres, this is roughly the size of Sudan. It furthermore has a combined population of about 133 million, 2% of the global population (EAC, 2012). The EAC was founded with the view to establish an East African Federation, a proposed federation of the five EAC members into a single state. It is hoped that the wider market will increase the region's ability to attract investments, nurture economic growth, improve economic efficiency and reduce poverty (Miriri, 2010). In 2010, the EAC launched a common market for goods, labour and capital within the region, with the goal of a common currency by 2012 and a full political federation by 2015 (Miriri, 2010). Since its inception the EAC has made strides towards the abovementioned integration process, but it has not met the deadlines initially set. The Customs Union's basic foundations are in place and the implementation of the common market is at various levels in different countries. The Monetary Union, however, is only in the discussion phase and the political federation is currently in the research phase (Ministry of EAC, 2012).

All of the EAC countries, apart from Tanzania, belong to the Common Market for Eastern and Southern Africa (COMESA), a free trade area stretching across twenty member states. Tanzania is one of 15 member states belonging to the Southern African Development Community (SADC). In 2008 it was decided that a free trade area would stretch across COMESA, SADC and the EAC (COMESA-EAC-SADC Tripartite, 2012).

1.2. Tobacco Control Legislation and Ratification of the FCTC

Tobacco Control (TC) pricing measures in each EAC country should be considered with respect to their overarching TC legislation. All of the EAC countries signed and ratified the Framework Convention on Tobacco Control (FCTC) by June 30th 2007 (see Table 1.2.1). The ratification of the FCTC implies that all countries should have made steps towards TC legislation in line with FCTC recommendations. Table 1.2.2 below shows the compliance of EAC states to some of the WHO MPOWER policies. The MPOWER reports are used to track countries interventions for monitoring tobacco use, protecting people from tobacco smoke, offering help to quit, warning people about the dangers of tobacco, enforcing bans and raising taxes on tobacco products. This section will note the tobacco legislation and compliance of each EAC member state, serving to establish a baseline for a discussion on Article 6 of the FCTC involving tax and pricing demand measures.

Table 1.2.1: EAC Countries Signing and Ratifying the FCTC

Country	Signature Date	Ratification
Burundi	16 June 2003	22 November 2005
Kenya	25 June 2004	25 June 2004
Rwanda	2 June 2004	19 October 2005
Tanzania	27 January 2004	30 April 2007
Uganda	5 March 2004	20 June 2007

(source: WHO, 2012)

Table 1.2.2: MPOWER Compliance

Country	Does Smoke-free legislation exist for Health Care, educational and government facilities? (Y/N)	Does the National law require fines for smoking? (Y/N)	Is there a toll-free telephone quitline? (Y/N)	Does the Law mandate that Health Warnings Appear on packages?	Are there direct bans on tobacco advertising for national TV and Radio or newspaper or billboards?	What is the excise tax structure and its proportion of retail price (for the most popular brand in 2010)?
Burundi	N	N	N	-	N	Ad Valorem: 36%
Kenya	N	Y	N	Y	Y	Specific: 50%
Rwanda	N	N	N	N	N	Ad Valorem: 51%
Tanzania	N	Y	N	Y	Y	Specific: 11%
Uganda	Y	Y	N	N	N	Specific: 29%

*bold letters indicate that from reporting to present these compliance status's may have changed (source: WHO, 2011)

Kenya was the first country in the EAC to sign and ratify the FCTC on the 24 June 2004. It can be considered the leading EAC country with respect to TC, not only because of its speedy ratification, but also because of enforced tracking and tracing measures to prevent illicit trade, and more recently its focus on implementing graphic health warnings on tobacco packages (CTCA(b), 2012). The Tobacco Control Act of 2007 is the principal law governing TC in Kenya. Article 12(a) of this Act states that the Minister of finance shall implement tax policies and where appropriate, price policies on tobacco and tobacco products so as to continue the objectives of this Act (CTFK, 2012).

Tanzania passed the Tobacco Products Regulation Act of 2003 (TPRA), before any of the EAC countries had signed the FCTC (CTFK, 2012). This law imposes restrictions on tobacco industry promotion, as well as health warnings and an increase in the legal age of smoking to 18 years. The TPRA, however, is still not consistent with FCTC standards. For example, tobacco advertising and sponsorship continues in the music industry (IDRC, 2011). Furthermore, there are no obligatory TC pricing measures (i.e. tax or price increases) documented in the TPRA. Tanzania signed the FCTC in 2004 but did not ratify it until April 2007. Tanzania should update the TPRA according to FCTC standards.

Uganda signed the FCTC on the 5th March 2004 and ratified on the 20th June 2007. Despite ratification, the Ugandan Tobacco Control Bill (UTCB) is still in progress (CTCA(a), 2012). The UTCB is said to be in the final stages, with the Ministry of Health (MoH) passing the relevant policy (CTCA(a), 2012). The UTCB proposes that excise tax on tobacco should be at a minimum of 75% of real retail price. It also proposes that the government shall dedicate 3% of all taxes levied on tobacco and tobacco products to implementing tobacco control programmes (Businga, 2012). Currently the only existing TC law is the National Environment Law of 2004 which bans smoking in public places (Zakumumpa, 2011).

Rwanda signed the FCTC on the 2nd June 2004 and ratified it on October 19th 2005. The Rwandan Minister of Health, Richard Sezibera, introduced a Tobacco Control Bill to the Rwandan Parliament for floor action on June 7th 2010 (Musoni, 2010). The Senate passed the Tobacco Control Bill in October 2012 (AllAfrica, 2012). The passing of the bill was said to be motivated by declining tax revenues. Rwanda's tax revenues from imported tobacco shrunk 63% from January to June 2012 (AllAfrica, 2012). The Rwandan Tobacco Control Bill prevents advertising, sponsorship and smoking in public places. However, owners are still able to designate smoking areas (Library of Congress, 2010).

Burundi signed the FCTC on June 16th 2003 and ratified on 22 November 2005. There are no national regulations on smoke free environments in Burundi according to the WHO country profiles. Griffith (2008) reports that smoking restrictions in Burundi only apply to the Ministry of Health.

Although Kenya, Tanzania and Rwanda have comprehensive TC legislation in place, the smoke-free laws do not fully meet the FCTC requirements as they allow for specially designated smoking areas (Tumwine, 2011). Burundi currently has no TC legislation in place, even though the country has ratified the FCTC. Effort should be made to implement a comprehensive TC Act in Burundi. Kenya is also the only EAC country to specifically address pricing measures in its national legislation. One of the major shortfalls in Kenya, Tanzania and Uganda is also the lack of enforcement surrounding existing legislation (IDRC, 2011). An increase in the monitoring and enforcing of TC legislation in the EAC should assist in decreasing smoking prevalence in the region.

1.3. Smoking Prevalence in the EAC

The most reliable source of smoking prevalence in the EAC is the Demographic and Health Surveys (DHS) which provide country specific and comparable data on population, health and nutrition in over 90 developing countries. The DHS is funded by USAID with contributions from other donors. The sample sizes used in the standard DHS survey range from 5 000 to 30 000 households (DHS, 2012). The DHS gives the crude smoking prevalence, a summary measure of tobacco use in a population. The crude rate, expressed as a percentage of the population, refers to the number of smokers per 100 people in the population. When the crude prevalence rate is multiplied by the population, this yields the number of smokers in the whole country (WHO, 2011). In the DHS, however, the range of ages in the samples are limited to 15-49 years or 18 years and over for women; and 15-54 or 15-59 years for men because the DHS is designed to estimate fertility (Pampel, 2008). This may bias crude estimates of tobacco use among all adults.

The DHS reports that in Kenya, 2008, and Tanzania, 2010, crude smoking prevalence was around 18% for males and less than 1% for females. In Uganda, 2006, the crude smoking prevalence was 23% for males and 4% for females. The 2010 DHS results for both Rwanda and Burundi are around 12% for males and less than 1% for females. Table 1.3.1 below gives a summary of all the crude prevalence figures obtained from the DHS surveys for all EAC countries. In the most recent prevalence estimates it can be seen that Uganda has the highest prevalence rates, followed by Kenya, Tanzania, Burundi and Rwanda.

Table 1.3.1: DHS Smoking Prevalence Results

Country	DHS 1 st prevalence recording (%)	DHS 2 nd Prevalence Recording (%)	Difference in Prevalence rates from 1 st to 2 nd recording	Prevalence Ranking for the most recent recording (1 being the highest)
Burundi	2010 Male: 12.15 Female: 0.7		-	4
Kenya	2003 Male: 23 Female: 0.7	2008 Male: 18.8 Female: 0.5	Male: -4.2 Female: -0.2	2
Rwanda	2005 Male: 14.2 Female: 0.3	2010 Male: 12.1 Female: 0.3	Male: -2.1 Female: 0	5
Tanzania	2003 Male: 20.8 Female: 0.5	2010 Male: 18.1 Female: 0.3	Male: -2.7 Female: -0.2	3
Uganda	2000 Male: 18 Female: 1.2	2006 Male: 23 Female: 4	Male: 5 Female: 2.8	1

The World Bank predicts that if Rwanda, Tanzania and Uganda maintain their growth momentum, that is, the average growth from 2000-2009, and if Kenya accelerates, all four countries will reach Middle Income status, above USD 1000 per capita, within the next ten years (Fengler, 2012). One would expect the DHS prevalence rates to also increase over time due to increasing income levels in the region. Many studies, especially in developing countries, have found a positive relationship between income and smoking prevalence (IARC, 2011).

Looking at males only, one can see that instead of increasing, the prevalence rates for Kenya decreased by 4.2% from 2003 to 2008 (see Table 1 above). In Rwanda this decrease was 2.1% from 2005 to 2010 and in Tanzania this decrease was 2.7% from 2003 to 2010. These decreases could be related to the FCTC ratification and national legislation. For example, the first DHS smoking prevalence recording in Kenya was taken in 2003, thereafter Kenya signed and ratified the FCTC in 2004 and instituted the Tobacco Control Act of 2007, raising the excise tax on cigarettes. The second prevalence reading was taken in 2008 after these tobacco control interventions. Similarly, in Tanzania, the first prevalence recording was in 2003, followed by the TPRA in 2003 and FCTC ratification in 2008. The latest prevalence study in Tanzania was conducted in 2010, after legislative measures had taken place.

The only country to demonstrate increasing prevalence rates over time is Uganda, with male prevalence increasing from 18% in 2000 to 23% in 2006. This may also be explained by the FCTC and national legislation. The FCTC was only ratified by Uganda in 2007 after the last

DHS prevalence recording. Furthermore, a national Tobacco Control legislation document is still pending, indicating that prevalence rates may have increased due to a lack of legislation.

Though prevalence rates for women are reported to be around 1%, which is extremely low, there are widespread concerns about the empirical accuracy of these rates (IDRC, 2011). Oftentimes the DHS is administered to the head of the household, which in many instances is a man. This may lead to respondent bias because it is culturally inappropriate for women to smoke (IDRC, 2011). In general, other sources reflect low smoking prevalence among women, possibly for the same reasons mentioned above. Pampel (2008) finds that in Kenya and Uganda the DHS figures for women are much lower than in the Tobacco Control Country Profiles (2000) compiled under the auspices of the American Cancer Society (ACS).

Other notable prevalence studies have been done by the Economic Research Council (ERC, 2010). The ERC estimates the 2008 adult smoking prevalence to be 48% in Kenya and 54% in Tanzania. The ERC does not explain their methodology in obtaining this data. Kolawole et al. (2009) summarises a number of smaller Kenyan studies focused on specific vocations such as health practitioners. In these studies male prevalence lies between 50% and 65%, and female prevalence between 3% and 7%. The sample size of these studies range from 150 to 672 people, a lot smaller than the DHS study. Furthermore the definition of 'current smoker' varies across these studies.

Research conducted by the MoH in Rwanda found 16.1% of all males in Rwanda between the ages of 15 and 59 are smokers and 3.6% of women between the ages of 15 and 49. These prevalence figures are similar to those found in the DHS. Most of the prevalence studies above do not describe their methodology and others cannot directly be applied to this paper so, although they are interesting, the DHS prevalence rates are preferred.

The Global Youth Tobacco Survey (GYTS) is a notable study indicating prevalence among school-going children (13–15 year olds). The GYTS results show that the average smoking prevalence from the most recent surveys in the EAC region to be around 4.5%, with the male prevalence slightly larger than the female prevalence, except for Kilimanjaro, Tanzania (CDC, 2008). The highest smoking prevalence among the youth in the EAC can be found in Kenya at 8.2% and the lowest in Rwanda at 1.8%. Table 1.3.1 below represents each country's smoking prevalence results from the GYTS.

Table 1.3.1: EAC GYTS Smoking prevalence Comparison

Country	have ever smoked cigarettes(% M;F)	have ever smoked cigarettes(% M;F)	currently smoke cigarettes (% M;F)	currently smoke cigarettes (% M;F)	Never smokers likely to initiate in the next year (%)	Never smokers likely to initiate in the next year (%)
Burundi		2008 19.1 (23.9; 14.1)		2008 4.6 (5.8; 3.2)		2008 17.8
Kenya	2001 13.1 (17.6; 8.9)	2007 24.4 (33;15.5)	2001 6.6 (8.7; 4.7)	2007 9.8(12.7;6.5)	2001 21.2	2007 19.4
Rwanda		2008 16.3 (23.5; 9.5)		2008 1.8 (3; 0.9)		2008 10
Tanzania	2003 Arusha 7 (11.6; 3.4) Dar es Salaam 10 (17.9; 8.5) Kilimanjaro 6.9 (11.4; 5.7)	2008 Arusha 6.2 (7.5; 4.9) Dar es Salaam 9.2(12.7;6) Kilimanjaro 14.1 (16.3; 11.8)	2003 Arusha 1.8 (3.8; 0.4) Dar es Salaam 2.9 (4.3;2.4) Kilimanjaro 1.6 (3.2; 1.3) <6.3>	2008 Arusha 1.7 (2.2;1.1) Dar es Salaam 2.6 (4.6; 0.7) Kilimanjaro 3.6 (3.3; 3.8) <7.9>	2003 Arusha 2.5 Dar es Salaam 3 Kilimanjaro 4.6	2008 Arusha 3 Dar es Salaam 2 Kilimanjaro 2.2
Uganda		2007 15.6 (19.2; 11.2)		2007 5.5 (6.6; 4)		2007 6.7

(Source: CDC & WHO, 2008)

Only Kenya and Tanzania have GYTS results for more than one year which allows us to determine possible trends. The Tanzanian results are separated into regions, whereas all the other EAC GYTS data is national data. The Kenyan GYTS results show that between 2001 and 2007 there has been an increase of around 11 percentage points in the youth who have tried smoking and an increase of 3.2 percentage points in current smokers (CDC, 2008). The Tanzanian data also shows an increase in the youth who have tried smoking on average and in current smokers (an average of 0.53 percentage points increase) between 2003 and 2008. This increasing prevalence among the youth shows that future development of the market remains on an upward trend despite decreasing prevalence rates shown in the DHS.

1.5 Tobacco and Cigarette Production and Consumption

The table below shows how the tobacco area harvested in all EAC countries has changed from 2000 to 2009 as well as the relationship between tobacco growing and cigarette production. This table summarises the major tobacco growing countries in the EAC and the major cigarette producing countries, indicating likely trade flows from the growers to the producers and from the producers to the consumers.

Table 1.5.1: Tobacco Area Harvested and Cigarette Production in the EAC

Country	Tobacco Area Harvested in 2000 (Hectares)	Tobacco Area Harvested in 2009 (Hectares)	Percentage change in Tobacco Area Harvested	Local Production (billion cigarettes)	Local Consumption (billion cigarettes)	Difference Imported (-)or Exported (billion cigarettes)
Burundi	705	1 497	112.3	0.47	0.48	-0.01
Kenya	14 160	20 642	45.8	14.9	5.7	9.2
Rwanda	3 634	4 459	22.7	0	0.27	-0.27
Tanzania	44 000	41 000	-6.8	5.87	5.5	0.37
Uganda	13 712	14 000	2.1	0	0.92	-0.92

(Source: Tobacco Atlas 2012 & Sources noted in Appendix B)

The area dedicated to tobacco harvesting in Burundi has grown by 112.3% from 2000 to 2009, followed by Kenya at 45.8%, Rwanda at 22.7% and Uganda at 2.1%. The tobacco area harvested in Tanzania has declined by 6.8 percent, albeit from the highest base of 44 000 Ha. Tanzania, Kenya and Uganda are the largest tobacco growers in the EAC. Tobacco growing makes up around 5% of Gross Domestic Product (GDP) in Tanzania and Uganda. In Kenya this figure is around 7%, which translates to around USD 65million in exports (Gichane, 2012).

The major cigarette producing countries are Kenya and Tanzania, producing around 14.9 billion cigarettes and 5.87 billion cigarettes respectively. This implies that some of the tobacco grown in Tanzania and most of the tobacco grown in Uganda and Rwanda is exported to Kenya for production. Kenya and Tanzania are the only net exporters of manufactured cigarettes in the EAC, exporting around 9.2 billion cigarettes and 370 million respectively. Burundi, Rwanda and Uganda are net importers of cigarettes, importing around 10 million, 270 million and 920 million respectively.

Section 2 Excise Taxation

2.1 Tax Structures and Tax Burdens

Excise taxes can be either specific taxes, based on quantity, or ad valorem, based on value or a mixture of both (Sunley et al., 2000). Ad valorem taxes can be structured on the base of the Cost Insurance Freight (CIF) value, ex-factory price, the wholesale price or the Retail Selling Price (RSP). This section will look at each EAC country's current cigarette excise tax structure and tax burden. This will be followed by a discussion on the positive and negative aspects of specific, ad valorem and a mixed excise tax structure, so that tax recommendations can be made for the EAC.

The Ministry of Finance in Kenya raised taxes on cigarette products by 10 percent each year from 2007 to 2009. For tax increases to work as a public health strategy, increases must keep up with changes in inflation and income. However, in the 2009–10 budget, there was no increase (IDRS, 2011). In Kenya the finance minister has the authority to adjust taxes for inflation. A clear principle should be placed on the excise tax so that it is automatically indexed for inflation (Chaloupka 2010a). The table below shows the Kenyan excise tax structure in 2011.

Table 2.1.1: Kenyan Cigarette Excise Structure in 2011

Categories: Post 2008 definitions	Specific Tax per mille (KSH)	Specific Tax per mille (USD)	Specific tax per pack (USD)
Plain cigarettes or plain cigarettes RSP of up to Ksh 2,500 per mille	700	8.45	0.17
Soft Cap cigarettes of <72mm or soft cap cigarettes with RSP of Ksh 2501 - 3,500 per mille	1000	12.08	0.24
Soft cap cigarettes of >72 mm or soft cap cigarettes with RSP of Ksh 3501 -Ksh 4,500 per mille	1500	18.12	0.36
Hinge lid or RSP of more than Ksh 4,500 per mille	2500	30.19	0.60

In 2011 the International Institute for Legislative Affairs (ILA) commissioned a study on the economics of tobacco taxation in Kenya. The study found that due to the constant state of flux of the excise tax system it was difficult to predict the impact of excise tax changes on tobacco consumption and government excise revenue. It was reported that in many instances the policy changes led to “revenue losses, suggesting that the design and administration of the excise duties is problematic” (Kimosop et al., 2012). After the study was

conducted there was a call for simplification of the tobacco excise structure in line with WHO recommendations.

In June 2011, the Finance Bill which was tabled in the Kenyan parliament proposed a simplified excise tax structure. Due to several reasons, including political ones, the Bill was tabled and withdrawn several times but was finally enacted in April 2012. The excise tax structure changed from the four tiered specific tax system to a mixed structure of ad valorem (35% on retail price) and specific tax of KSH 1200 per mille (USD 14.49), whichever is higher (Kimosop et al., 2012).

Table 2.1.2: Kenyan Cigarette Excise Structure in 2012

Categories	Specific Tax per mille (KSH)	Specific Tax per mille (USD)	Specific tax per pack (USD)	Ad valorem Excise
All cigarettes	1200	14.49	0.29	35% of RSP

The table above shows the specific tax and ad valorem tax for all cigarettes in Kenya. The binding tax is the specific tax of USD 0.29 (KSH 24) per pack for all market segments. The specific tax acts as a tax floor and the ad valorem tax only serves to increase the excise tax for higher priced brands (i.e. when the price is greater than USD 0.29 or KSH 24 per pack). This is a hybrid tax system in that the ad valorem component only comes in on top of the specific tax for higher priced brands. This tax structure is much simpler than the tiered structure, although it is more complex than a uniform specific tax. It also ensures that all tobacco products are taxed equally, to prevent tobacco users from switching tobacco brands and types due to price differences. It further prevents manufacturers from switching from one tax band to another. An example of this occurred in December 2010, when the Finance Committee of Parliament amended the finance Act of 2010 to eliminate an earlier inclusion of length as an excise tax determinant. This amendment would have placed Mastermind's *Supermatch* and BAT's *Sportsman* brands at the same tax level. In response, BAT Kenya reduced the price of the *Sportsman* brand from Ksh 95 to Ksh 75 per pack, shifting it to a lower tax class, costing the government around Ksh 2 billion (USD 24 million) foregone in excise tax revenue (Wahome, 2011).

In Tanzania the cigarette excise tax is a three tiered specific tax. One of the main aims of the 2012/2013 budget was to increase domestic revenues from 16.9% of GDP to 18% of GDP (PWCB, 2012). To this end excise taxes for alcohol, carbonated soft drinks and tobacco have all increased. In 2011 excise taxes were increased by 10% in line with inflation. In 2012

all tiers have been increased by 20% in accordance with the 2012/2013 National Budget objectives mentioned above (PWCb, 2012). Cigarettes without a filter containing more than 75% domestic tobacco are taxed at TZS 8210 per mille (US\$ 5.15) (PWCb, 2012). Cigarettes with a filter, containing more than 75% domestic tobacco are taxed at a rate of TZS 19410 per mille (USD 12.18) (PWCb, 2012). All other cigarettes are taxed at a specific rate of TZS 35117 per mille (USD 22.04). The table below gives a breakdown of cigarette excise taxes in Tanzania (2011-2012) and the US dollar equivalents per pack.

Table 2.1.3: A 20% Increase in the Tanzanian Cigarette Excise Taxes

Category of Excise tax	Current Specific Tax per mille (TZS) 2012	Specific tax per pack (USD)	Previous Specific Tax per mille (TZS) 2011	Previous Specific tax per pack (USD)
Without a filter containing 75% local content	8210	0.10	6830	0.09
With a filter containing 75% local content	19410	0.24	16224	0.20
Other	35117	0.44	29264	0.37

(source: PWCb, 2012 and own calculations)

The above tax rates imply that imported filter cigarettes pay 81% $(35117/19410-1)$ more excise than filtered cigarettes with 75% local content. This practice is discriminatory towards the importation of any cigarettes and a single tiered specific tax would serve to remedy this bias.

Uganda has a three-tiered specific excise tax based on packaging characteristics and the location of raw materials and production of the cigarettes. The tax rates are different for soft cup and hinge lid packaging. Soft cup packaging is of paper construction which offers less protection to the cigarette and is cheaper to produce than the hinge-lid packaging which is made from rigid cardboard (Marden, 2007). The rationale for this differentiation is that the soft cup packaging usually contains the cheaper brands and the hinge-lid packaging the premium brands (Sunley, 2009). It must be noted, however, that some premium brands are sold in soft cup packaging (Sunley, 2009). The excise taxes for Uganda can be seen in the table below:

Table 2.1.4: Ugandan Cigarette Excise taxes 2012

Category	Specific Tax per Mille (UGS)	Specific tax per pack (USD)
Soft cap with greater than 70% local constituents	22000	0.19
Other Soft caps	25000	0.22
Hinge Lid	55000	0.48
other	-	-

(Source PWC, 2012 and own calculations)

In Uganda, soft cup cigarettes with more than 70% local constituents are taxed at UGS 22000 per mille (USD 9.54), while soft cup cigarettes with less than 70% local constituents are taxed at UGS 25000 per mille (USD 10.85). Hinge lid cigarettes are taxed at UGS 55000 per mille (USD 23.86) (PWC, 2012). There is a lack of clarity surrounding the “local constituent” in the Ugandan excise tax. It is unclear whether the “local constituent” is the leaf, other raw materials or labour etc. There is also no independent check or prescribed process for confirming that the 70% “local constituent” requirement has been fulfilled. Other cigarettes that do not fall into these three tiers are taxed at an ad valorem rate of 160% on the ex-factory price.

Tanzania and Uganda’s use of tiered specific excise tax shows that these governments have pursued other goals, in addition to revenue generation, through the types of taxes that are applied. Some countries use high customs duties to protect domestic tobacco growers or industries from outside competitors while others have done the same by applying excise tax (WHO, 2010). This may be seen as discriminatory according to WTO best practice. Discrimination is prohibited in the General Agreement on Tariffs and Trade, whereby imported products are not to be subject to internal taxes or charges in excess of those applied to domestic products (Sunley et al., 2000). These countries should employ a uniform specific tax that is non-protectionist in the excise tax context. They can, however, impose import tariffs, which would have the same effect as differential excise taxes. In Tanzania and Uganda the tiered excise tax especially affects imports from EAC countries as the 35% import tariff for Tanzania and the 25% import tariff for Uganda do not apply (see Appendix B). In Tanzania this is not a major issue as imports from other EAC countries do not even make up 1% of total consumption. In Uganda, however, imports from other EAC countries make up 100% of domestically consumed cigarettes.

The excise tax on cigarettes in Rwanda is currently 150% ad valorem tax on the Net of Tax (NOT) value for locally produced goods and 150% on CIF value for imported goods (Rwanda Revenue Authority, 2012). There are no locally produced cigarettes in Rwanda, therefore, all excise is based on the CIF value. Excise duty in Rwanda is levied in accordance with the 2010 Law No 28/2010 which modifies the 2006 Law No 26/2006 (Institute of Policy Analysis and Research- Rwanda, 2011).

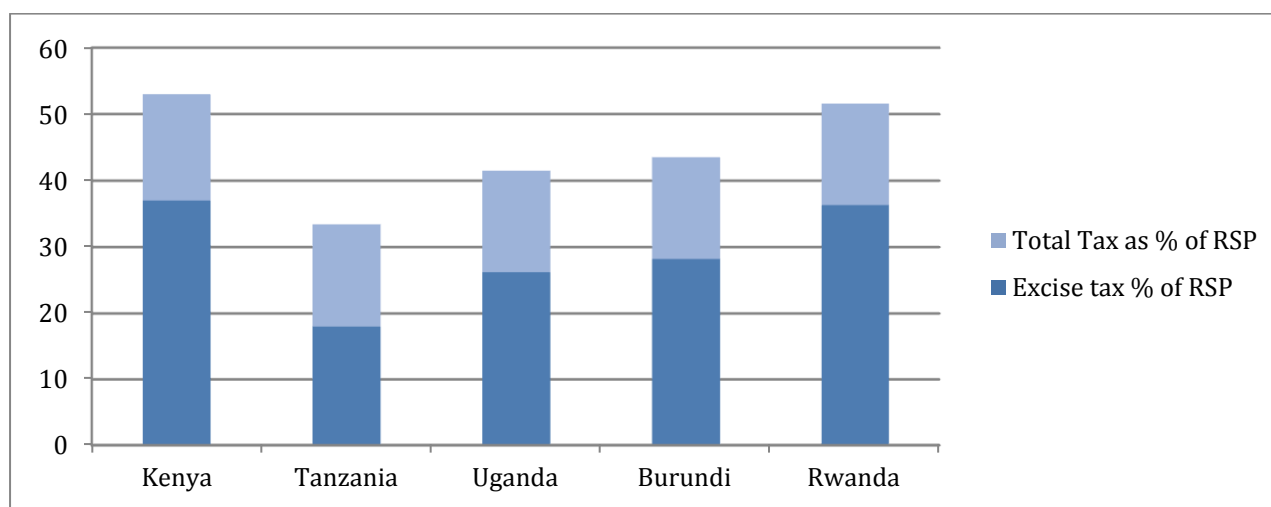
In Burundi the excise tax is 100% ad valorem on the ex-works price (Peterson, 2010). The legal base for this is the Budget Law of 2009. The table below separates the different tax structures used in the EAC. It looks at the excise tax burden and the total tax burden as a percentage of the average retail selling price. This is followed by a graph depicting the tax burdens.

Table 2.1.5 Comparing the Current Tax Burdens as a percentage of Retail Selling Price (RSP)

Country	Weighted Average RSP (USD/pack)	Specific excise (% of RSP)	Ad valorem excise (% of RSP)	Average Excise Tax (USD/pack)	Total tax including import tariff and sales tax (% of RSP)
Kenya	0.89	48.0	35.0	0.32	51.0
Tanzania	1.25	18.0		0.44	33.4
Uganda	0.85	26.2		0.22	41.5
Burundi	0.64		28.2	0.18	43.5
Rwanda	0.87		36.3	0.31	51.6

(Source: PWC, 2012 and own calculations)

Graph 2.1.1 The Current Tax burdens as a percentage of RSP



The graph above shows that Kenya and Rwanda have the highest average excise tax as a percentage of RSP, with figures of around 37% and 36% respectively. This is followed by Burundi with around 28%, Uganda with 26% and Tanzania with 18%. These figures fall below those recorded for other low income countries which average at around 41% (Chaloupka et al., 2011). Furthermore, The World Health Organisation (WHO) recommends that excise taxes should form 70% of the retail price of cigarettes (WHO, 2010).

Economic theory shows that the choice of tobacco excise tax structure will have a significant impact on government's ability to achieve its public health and fiscal objectives (WHO, 2010). The health objective is to decrease consumption levels and give the message that all brands are equally harmful while the fiscal objective is to increase government revenue and ensure predictable revenue streams. Other considerations when comparing excise tax structure are the administrative costs and the real value of the tax. The real value of the tax can be reduced through rising inflation and income levels (WHO, 2010).

Ad valorem excise taxes are less beneficial than specific taxes from a health and fiscal point of view. They are also more difficult to administer than uniform specific taxes. The ad valorem excise structure weakens the revenue impact of the taxes and requires a determination of value and thus a strong tax administration to deter tax evasion (Chaloupka et al., 2011). Burundi and Rwanda practice ad valorem taxes based on the ex-factory price or CIF. These value based taxes are likely to incur undervaluation of the tax base which negatively affects health objectives (Perucic, 2012). This will be discussed in greater detail in

section three. Government revenue projections are also more uncertain under ad valorem tax structures because of tax evasion, sensitivity to industry pricing decisions and substitution effects between brands (Chaloupka et al., 2011). The substitution effect occurs because the value based tax creates greater gaps in prices between high and low priced brands, leading to greater availability of relatively low priced, low 'quality' products (Chaloupka et al., 2010a). Ad valorem excise taxes create the impression that all brands are not equally harmful; the lower excise burden per stick on cheaper brands cannot be justified by health concerns.

Ad valorem taxes based on the Retail Selling Price (RSP) such as those recently applied in Kenya can have the advantage of a tax multiplier effect, where part of any increase in the consumer price goes to the government as excise revenue. For example, if the tobacco industry in Kenya were to raise the NOT price of cigarettes by 20% from around KSH 45 to KSH 54 in the high price segment, the excise tax would increase by 20% from KSH 30.5 to KSH 36.6. The VAT amount would increase by 20% from KES 12 to KSH 14.4 and the retail price would increase by 20% from KSH 87 to KSH 105. It is best practice to use the RSP as the base when imposing ad valorem excise tax to avoid industry manipulation and to incur the multiplier effect shown above. Kenya uses a mix of ad valorem taxes based on RSP and specific excise, incorporating the strengths of both types of excises, but at the cost of adding to the administrative complexity (Chaloupka et al., 2010a).

Tiered specific tax structures, like those found in Tanzania and Uganda, are also very complex tax structures and lead to greater variability in the price of different brands and tobacco products. This creates opportunities for the substitution effect to cheaper brands or products in response to increased taxes. In addition these tiered taxes are more difficult to administer and can undermine the health impact of tobacco excise taxes by creating greater opportunities for tax avoidance and tax evasion (Chaloupka et al., 2011).

From a public health perspective, a strong argument can be made for a high, uniform specific tax on cigarettes (Chaloupka et al., 2010a). Uniform specific taxes are relatively easy to administer (Chaloupka et al., 2010a). They also guard governments financially by protecting against industry price wars or price reductions (Sunley et al., 2000). In this way uniform specific taxes allow fiscal revenue streams to be more predictable. They also ensure that the tax burden is the same per cigarette. This sends the public health message that all brands are equally harmful. A uniform specific tax is especially helpful for countries with large price discrepancies between brands and tobacco products (Guindon et al., 2002).

The real value of specific taxes will erode over time, unless tax rates are regularly adjusted for inflation and income growth (Chaloupka et al., 2010a). In order to prevent erosion of the tax due to inflation, specific taxes should be indexed for inflation, increasing by at least the same rate as inflation per year. Ad valorem taxes are not exempt from devaluation as they can decline with price cuts initiated by the industry. Both ad valorem and specific taxes need to be increased at the rate of income growth to prevent the real reduction of the tax and increase the affordability of tobacco products. Affordability looks at the impact of price and income on consumption. An increase in price results in cigarettes becoming less affordable whereas an increase in income results in them becoming more affordable (Blecher & van Walbeek, 2009). From 2005 to 2012, average per capita income growth in the EAC was 3.7%. This is higher than that of sub Saharan Africa (3, 2%) (Shinohara, 2012). Excise tax increases should lead to price increases that are in line with inflation and income increases. This is particularly difficult to achieve with ad valorem taxes due to the industry's ability to manipulate the NOT price.

If inflation is high and expected to remain high, ad valorem taxes are preferred as they automatically self-adjust for inflation (Yurekli et al., 2011). According to the World Bank the annual inflation in Uganda was 18.7% in 2011. This figure was 14% in Kenya, 12.7% in Tanzania, 9.7% in Burundi and 4.9% in Rwanda (World Bank, 2011). Inflation rates in the EAC are quite high, implying these countries may benefit from an ad valorem tax; however, a uniform specific tax that adjusts for inflation is still preferable in this case. Specific taxes should be automatically adjusted for inflation by referring to the consumer price index (CPI). It is critical that the tax adjustment be automatic by administrative order and not require approval from a legislative body (Yurekli et al., 2011). This will serve to bypass administrative inefficiencies.

2.2 Global Overview

The World Health Organisation (WHO) completed a study in 2009 looking at 182 countries and categorising them according to their income level and excise tax structure (WHO, 2010). Across WHO regions the European region was found to have the highest average retail price and total tax share of average RSP (USD 3.87/pack and 63% respectively), mainly because of the European Union (EU) countries. The Eastern Mediterranean region had the lowest average consumer price and tax share, with the African region being second lowest (WHO, 2010).

The WHO recorded that a large number of countries, 60 in all, rely on ad valorem excises only, while 55 countries impose only a specific excise (WHO, 2010). About one quarter (48 out of 182) levy both specific and ad valorem excises. Furthermore it was found that 19 out of 182 countries do not levy any excises on cigarettes (WHO, 2010). In general, low-income countries are more likely to use an ad valorem excise whereas the trend for middle income countries was less clear. The WHO (2010) study found that 28 out of 40 low-income countries that levy an excise tax on cigarettes had ad valorem tax only compared to 10 that apply only a specific tax, while 2 use a combination of the two. In contrast, high-income countries are less likely to lean towards an ad valorem excise. Only 2 of 38 high-income countries rely on an ad valorem tax, while 11 rely on a specific tax and 25 use a mixture of both excises. These are mostly EU countries because of the EU excise tax directive.

2.3 The EU Example

The European Union (EU) is the world's largest common market and has adopted a large number of directives that harmonise taxes across the 27 member states. Many groups of countries that aim to integrate their economies, look to the EU as a prototype. Within this context it makes sense to briefly discuss the rather complicated harmonised excise tax system on cigarettes in the EU.

In each member country of the EU, the excise duty on cigarettes consists of two parts: one specific and one ad valorem (Yurekli et al., 2011). The specific element must represent 5–55 percent of the total tax burden (excise duty and VAT) of the most popular price category (MPPC) sold in that country under Directive 77/805/EEC of 1977 (Delipalla & O'Donnell, 1998). The ad valorem component may be anything between 45% and 95% tax (Townsend, 1996). This combination of tax types reflects a political compromise that enhanced the then-current tax regime for cigarettes. The EU was divided into two opposing camps with respect to their preferred structure of taxation. In general, the northern European countries preferred specific taxation and the southern countries ad valorem (Delipalla & O'Donnell, 1998). These differences led to major difficulties in trying to reach agreement on the harmonisation of taxes on cigarettes in the EU.

After several years of disagreement among EU member states, in 1992, it was agreed that a minimum excise tax burden as well as a specific excise tax floor, measured in euros per mille would be implemented. Since 1993, the overall excise tax should be no less than 57% of the Weighted average selling price (WAP), unless the tax is already at least 101 euros per mille and not less than 64 per mille (Commission for the European Communities, 2002). The

specific tax must be between 5 and 76.5% of the WAP. The ad valorem tax therefore must be between 23.5 and 95%. These directives imply an excise tax floor of €1.28 per pack of 20 cigarettes and a minimum overall tax level of 70% of the retail price.

The minimum excise tax burden of 57% of the retail price does not ensure the same level of cigarette prices across the EU. Chaloupka et al. (2010a) further argue that the above agreement does not reduce the wide range of tax levels in the EU. These disparities in price could lead to incentives for cross-border buying and declining average cigarette prices. Other incentives for cross border-buying include government corruption, an established informal market, and a well-organized criminal establishment (Merriman et al., 2000). Cross-border buying for personal use to evade tax and for resale to make a profit, that is bootlegging, was found to be a problem between Poland and Germany where the price differential was €2.98 as well as in Finland and Estonia (€2.85), and Greece and Bulgaria (€1.56) according to 2006 figures (Cnossen, 2006).

To address the incentive of price disparities, there is strong rationale for harmonising taxes and prices upwards in the EU to prevent bootlegging between high and low tax countries. There is furthermore incentive to raise the minimum tax rate and implement a specific rate rather than an ad valorem rate because the industry has more control over the quantum of tax per pack when it is entirely or mainly levied as an ad valorem tax. For example a high percentage ad valorem tax which incentivises the industry to decrease the NOT price will result in a lower price that will yield a lower tax as is the case in Spain and much of southern Europe (Townsend, 1996). In this instance, the price paid by consumers, even after application of a high ad valorem tax, is still relatively low, which encourages tobacco consumption.

Guindon et al. (2002) argues that neighbouring countries can minimise the incentive for cigarette smuggling by harmonising taxes on tobacco products. In early 2000, Lithuania, Latvia, and Estonia announced plans to harmonise their tobacco fiscal policies as they were required to raise their rates to qualify for membership in the EU. This suggests that spillover effects from tobacco tax harmonisation in the EAC could be seen in neighbouring countries such as South Sudan and Somalia as they have applied for EAC membership (Nkwame, 2012).

In 2010, the EU strengthened the tobacco tax requirements for member states, effective as of 1 January 2014. These requirements include an increase in the excise tax benchmark from 57% to 60% of WAP and the total minimum excise has increased from €64 (USD 102)

to €90 (USD 144) per 1000 cigarettes (Council of the European Union, 2011). The specific tax will therefore lie between 7.5 and 76.5%. This will result in an increase in the tax floor from €1.28 (USD 2) per pack to €1.80 (USD 2.8) per pack, which acts as a minimum specific tax. This 41% increase in the binding constraint will drive tax increases throughout the EU over the next few years, reducing price differentials within the EU. This will help to reduce tax avoidance and evasion, as well as reduce cigarette affordability. It must be noted that the most effective mechanism for reducing the price differential in the EU is not the excise burden component but rather the excise tax floor which acts as a minimum specific tax.

It is estimated that cigarette consumption in the EU is lower in countries that rely more on specific excise taxes. This conclusion was made drawing on the findings of an assessment on tax structures and cigarette prices (Chaloupka et al., 2010a). From a financial perspective, greater reliance on the specific tax in the EU is associated with higher excise tax revenues and less variability in these revenues in the long run.

The public health impact of specific taxes was a key factor in the new directive on tobacco taxes that raised the minimum tax for each member state and increases the emphasis on specific taxes (Council of the European Union, 2011). This directive reflects 'best practice' principles found in the WHO's Technical Manual on Tobacco Tax Administration. These principles include simpler tax structures that rely more on specific taxes (WHO 2010).

2.4 The Recommended Excise Tax for the EAC

From the health perspective, where the primary purpose of the tax is to discourage consumption of cigarettes, a strong case can be made for specific excises in the EAC. Specific taxes are also preferred if tax administration is weak as it is easier to determine the physical quantity compared to the value of the cigarettes (Yurekli et al., 2011). Also, from the financial perspective, increases in specific taxes have more predictable consequences regarding industry responses and government excise revenue streams than increases in ad valorem excise tax.

In light of the above discussion, from the health and financial perspective, one can deduce that including a specific tax component indexed for inflation and income growth is optimal for the EAC. The EU example shows that specific taxes will best serve to harmonise taxes and prices upwards across all EAC countries and prevent smuggling. Furthermore best practise suggests that a uniform specific tax should be used across all market segments. This will especially serve to rule out discrimination against imported products within the EAC. If the

aim is to protect local producers from competition of imported cigarettes then imported cigarettes should be taxed through import tariffs rather than differential excise taxes.

Currently, the highest average excise tax is in Kenya at USD 0.32 per pack (see Appendix B). This is very low compared to the new directive in the EU which states that the minimum excise must be USD 2.8 per pack. The EU excise tax is more than twice the average Retail Selling Price (RSP) of a pack in the EAC. Taking this into consideration, one can speculate that a specific uniform excise of between USD 0.40 and USD 1 indexed for inflation and income growth should be considered. A mixed system, like that of Kenya could also be explored. Examples of a mixed structure could be a specific tax of USD 0.60 or an ad valorem tax of 50% of RSP, whichever is higher. In this way the specific tax acts as the tax floor, as in the case of the EU. This tax structure will result in premium brands being taxed more than lower priced brands. A fiscal advantage of this structure is that it may result in higher revenue streams.

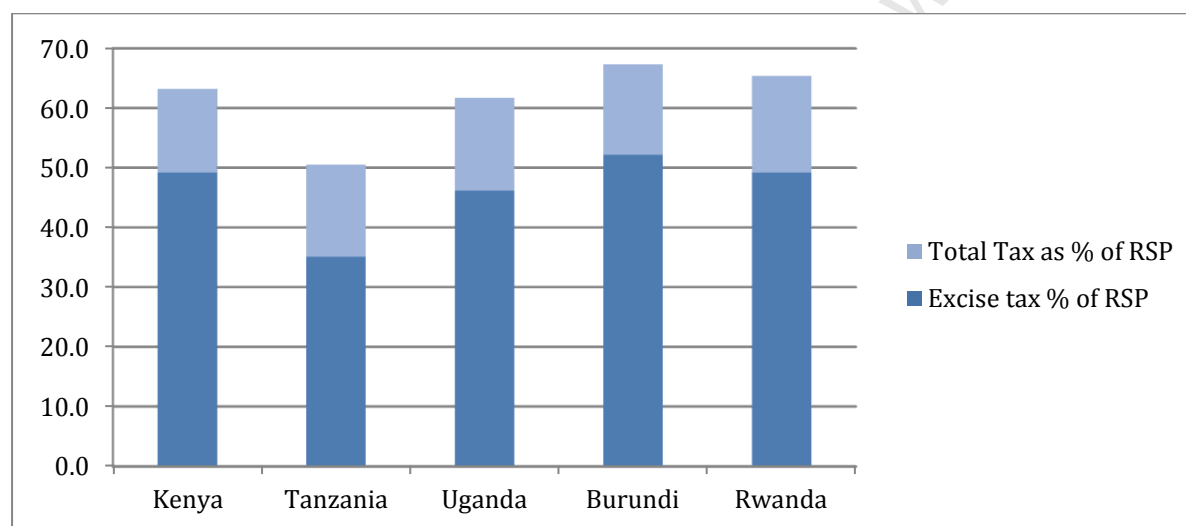
Sunley et al., (2000) notes that when setting the level of cigarette excise tax, factors that must be considered to reduce the risk of smuggling include the tax rate in neighbouring markets and the effectiveness of the tax authorities to enforce compliance. In light of this, Monitoring and Evaluation Specialist, Kellen Nyamurungi, said that Kenya has implemented a good policy for tracking manufactured tobacco products, “but its neighbours are yet to implement these measures, leading to the smuggling of tobacco products especially along common borders” (The Daily Monitor, 2012). Nyamurungi added that harmonization of tobacco control in the East African region is critical. This paper will explore the effects of a harmonised uniform specific excise of USD 0.6 across all EAC countries. This excise tax rate and structure will be adjusted in the sensitivity analysis to determine the change in health and fiscal benefits. Assuming the NOT price does not change with an increase in the excise tax, the effect of a USD 0.60 uniform specific excise tax on the tax burdens can be seen in the table and graph below.

Table 2.4.1: Comparing the Results of a USD 0.60 Specific Excise Tax across the EAC

Country	Weighted Average RSP (USD/pack)		Specific excise (% of RSP)		Average Excise Tax (USD/pack)		Total tax including import tariff and sales tax (% of RSP)	
	Current Situation	After tax Change	Current Situation*	After tax Change	Current Situation	After tax Change	Current Situation	After tax Change
Kenya	0.89	1.22	48.0*/35.0	49.2	0.32	0.60	51.0	63.2
Tanzania	1.25	1.71	18.0*	35.1	0.44	0.60	33.4	50.5
Uganda	0.85	1.30	26.2*	46.2	0.22	0.60	41.5	61.7
Burundi	0.64	1.15	28.2	52.2	0.18	0.60	43.5	67.3
Rwanda	0.87	1.22	36.3	49.2	0.31	0.60	51.6	65.4

*Corresponds to Specific Tax

Graph 2.4.1: The Proposed Tax Burdens as a Percentage of RSP



After the new specific excise tax of USD 0.60 is simulated the excise tax burden in all EAC countries increases as seen above. In Tanzania this increase is 17% from 18% to 35% of the RSP. The highest excise tax burden originally found in Kenya also increased from 37% to 49% of RSP. The largest increases in tax burdens of around 20% can be seen in Uganda and Burundi. The range of excise burdens in the EAC would fall between 35% and 53% of RSP (18% range) with a harmonised excise tax of USD 0,6 (see table 2.4.1). This is a smaller range than that of the current scenario, between 18% and 48% of RSP (30% range).

Section 3 Industry Strategy

3.1 Industry Responses to Increases in Excise Tax

The cigarette-manufacturing industry in the EAC is highly concentrated as it is in most other countries, and individual firms have significant control over the Net of Tax (NOT) price. The tobacco industry has a number of options in responding to an increase in the excise tax. These responses include no change in the NOT price or adjusting the NOT upwards or downwards in different percentage intervals. The response to an increase in the excise tax employed by the industry is motivated by profit margins and market shares. These industry responses effect the health and financial policy objectives of the excise tax change.

The tobacco industry can employ a one-to-one strategy, or under- or overshift excise taxes; their tactics depend on the market and excise tax structures and the economic context (Gilmore et al., 2012). Firstly, the industry can cause the retail price to increase by the full increase of the tax; that is, a change in the excise tax is assumed to be fully passed on to the smokers. This assumes that as the excise tax is increased and/or changed to a specific tax, the price of cigarettes will increase by the same amount as the increase in the excise tax for all market segments because the industry does not alter the NOT price. In some cases, the retail price might increase by slightly more than the increase in the excise tax quantum if the sales tax is levied on the excise tax as well. Secondly, the industry can pass on more than the value of the increase in the excise tax by increasing the NOT price; this is known as overshifting the tax. Thirdly the tobacco industry can pass on less than the value of the tax increase by decreasing the NOT price, this is known as undershifting the tax.

If the industry overshifts the tax then the industry increases the NOT price, coincident with the excise tax increase (van Walbeek, 2010). The retail price will increase by a greater percentage than had only the excise tax been increased. This enhances the consumption-reducing public health impact of the tax increase (Gilmore et al., 2012). Overshifting may lead to increased industry profits and greater declines in consumption than expected if the absolute value of the price elasticity of demand $|\epsilon_P|$ is less than 1.

Overshifting is most popular when the excise tax is levied as a specific tax (Gilmore et al., 2012). If cigarette smoking is in a declining phase then the optimal industry strategy employed by the tobacco industry is to overshift the tax to extract as much consumer surplus as possible (Barnett et al. 1995 in van Walbeek, 2010). Van Walbeek (2010) found this to be the case in South Africa where a significant proportion of the increase in the real retail price since 1994 was due to increases in the net-of-tax price, rather than increases in the excise tax. While this is less of an issue for public health because consumption is declining at a

greater rate due to higher prices, it highlights a missed fiscal opportunity for the government to increase tobacco excise (Gilmore et al., 2012). The government could have increased the tax by a greater amount, possibly increasing government excise revenues but instead the industry profits are enhanced through this strategy. Overshifting greatly enhances the public health benefits of an excise tax increase. However, the industry's client base shrinks at a faster rate than if a one-to-one strategy were employed. Furthermore, a strategy of overshifting the tax increases the motive for competitors to join the market.

In the case of an ad valorem excise tax increase the industry has an incentive to undershift the tax (Gilmore, 2012). This means that they have an incentive to reduce the NOT price, coincident with the excise tax increase. This may result in a less than expected increase in the retail price because the increase in price would be less than the increase in the tax. This strategy undermines the health and fiscal aims of the government. Under-shifting is most likely to occur when the tobacco industry is entering the market or trying to gain market share, particularly with the youth (Gilmore et al., 2012).

Depending on the $|\varepsilon_P|$ undershifting may be employed if the industry is trying to grow the market. Becker et al. (1994) argue that, given the addictiveness of nicotine, it is rational for cigarette companies to keep prices below profit maximising levels in the short term to ensure that their brands remain affordable, especially to those initiating smoking. It must be noted that the Becker example is from the US where the industry is less concentrated than the EAC. However, the point still holds and they argue that each addicted smoker provides an annuity income flow to the tobacco company until the smoker quits or dies. The crucial point is that the tobacco industry undershifts the tax in order to make tobacco products more affordable to the youth, hooking smokers when they are young and ensuring a lifetime revenue stream from that individual (Perry, 1999). Kostova et al., (2011) estimate that youth in low to middle income countries have a price elasticity of demand for tobacco of -2.11. Other studies on youth in Michigan estimate elasticity values of -1.31 (Chaloupka & Grossman, 1996). These youth elasticity values are much higher than those of the overall population, given by the IARC estimates, revealing that large increases in tax and price will lead to reductions in youth smoking, unless the industry undershifts the tax in all or at least some market segments.

In order to prevent the tobacco industry from targeting the youth by undershifting the excise tax, Gilmore et al., (2012) recommends substantial increases in the excise tax. Substantial

increases of this kind were noted in the Czech Republic during their accession into the EU. It has since been cited as an example in the prevention of undershifting. Substantial increases in the excise tax will prevent the industry from lessening the increase in price by undershifting the tax.

The industry can also employ a mixed strategy where overshifting and undershifting occurs in different market segments. One can speculate that the industry may also overshift the tax in the premium priced market segments to retain profits and undershift in the lower priced segments to grow their market share. The fact that adults have relatively lower price elasticity than youth means that the industry can increase revenue from the adult population by overshifting the tax in higher priced segments. This strategy ensures that the increase in revenue from the higher prices will offset the decrease in revenue from the lower sales. The industry still attracts the youth and other possible initiators by under-shifting the tax in the low-priced segments to make cigarettes more affordable to these markets.

3.2 Trade Margins and Tax Burdens

The Industry has an incentive to undertake transfer pricing in Burundi and Rwanda due to the ad valorem excise tax structure calculated on the ex-works price. Transfer pricing in this context is an accounting method used by large multi national corporations (MNC's) in which they artificially lower or increase the price of goods to evade tax. This is possible firstly through relationships with distributors and secondly through relatively high trade margins.

Within the tobacco industry, BAT has the most vertically integrated agricultural supply chain, obtaining most of their tobacco directly from contracted farmers (BAT, 2012). There is also a large incentive for upward vertical integration in order to gain market power. Sunley (2009) suggests that where excise tax is calculated ad valorem on the ex-works price then the industry has the incentive to manipulate the ex-works price downwards by selling to related distributors in order to evade tax. The examples below of vertical integration demonstrate that the tobacco industry stands to gain from upward vertical integration because of the profit incentives through tax evasion via transfer pricing, and restricted competition. With the control of export and import in many EAC countries BAT is able to undergo a level of transfer pricing in order to lower the ex-works price and ultimately the excise tax on cigarettes.

The Legacy Tobacco Documents Library (LTDL) holds tobacco industry internal corporate documents produced during litigation between 46 U.S. states and the seven major tobacco industry organizations (LTDL, 2012). These documents show evidence of Memorandum of

Understandings (MoU's) being signed between the tobacco industry and distributors (Legacy Document: 321766670, 2000). A tobacco company, namely The Jerusalem Cigarette Company Ltd. (JCC) whose registered office was at El-Azariya, Jerusalem also owned a distribution company as a wholly owned subsidiary. The distribution company owned by JCC further entered into an MoU with BAT Limited (UK and Export), namely a "distribution agreement" ensuring sole distribution of certain brands, financial kickbacks per case and confidentiality protection (Legacy Document: 321766670, 2000). This type of vertical integration, which enables transfer pricing, is still believed to be a key strategy of BAT today.

In the first quarter of 1997 in Kenya RJ Reynolds accused BAT of influencing distributors and stockists against selling competing brands (UNCTAD, 1999). When BAT was approached by the Monopolies and Prices Commission (MPC) they conceded to entering into a 'gentleman's agreement' with distributors. Investigations carried out by the Commission established that BAT had exclusive dealing arrangements with its distributors and they had stopped supplying BAT cigarette products to those who stocked the RJ Reynolds Aspen brand of Cigarette. The Commission considered these to be restrictive trade practices according to the Kenyan competition law. However, before the Commission could invoke section 15 of the Act, which empowers the Commissioner to propose appropriate remedial measures, the managing director of RJ Reynolds informed the Commission that BAT had ceased its unfair business practices (UNCTAD, 1999). The case was thereafter dismissed. The above examples of 'distribution agreements' and 'gentlemen's agreements' are a means for the tobacco industry to undergo transfer pricing in order to evade tax and increase profit margins.

Secondly, with respect to trade margins, Sunley (2009) looks at Mexico as an example of a state with a single rate ad valorem excise on cigarettes. The ad valorem rate in Mexico in 2009 was 160% on the wholesale price, that is, the retail price excluding VAT, excise tax and the retail margin. The base of the wholesale price includes the wholesale margin and therefore the incentive is not as big for the industry to artificially lower the ex-works price but rather the wholesale price. In this case Sunley assumes the retail margin alone to be 25% of the wholesale price. The Tobacco Atlas reports the retail and wholesale margin combined to be around 50% of the ex-works price (Eriksen et al., 2012). These large trade margins indicate that some level of transfer pricing was likely to have been initiated by the industry.

Another example of high retail and wholesale margins can be found in the Legacy Documents. These documents contain a Lucky Strike Implementation Plan explicitly for Africa (Legacy Document: 503965451, 1994). In this report BAT assume the importers

margin to be 20%, the wholesale margin to be 6% and the retail margin to be 15%. These margins were shown in the financials to be cumulative margins in that each margin is based on the previous figure. As an example the financial structure for Lucky Strike imported into Ghana, albeit in 1994, is shown below:

Table 3.1.1: Retail and Wholesale Margins Reported for Ghana in the Legacy Documents

GHANA

CIF Landed per mille	USD 15.1
Exchange on 7 th March (US\$1:GHC900)	13590
Excise tax 170.5% on CIF	23171
ADD: Tax 17.5% on CIF	2378
ADD: Import duty 25% on CIF	3397.5
ADD: Special tax 40% on CIF	5436
TOTAL LANDED COST	47972
Importers Margin 20% of Total Landed Cost	9595
Total After Importers Margin	57567
Wholesale Margin 6% of Total after importers Margin	3454
Total After Wholesale Margin	61021
Retailers Margin 15% of Total after wholesale margin	9153
Retail Selling Price	70174/mille
In-store price per pack	GHC 110.2

(Source: Legacy Document: 503965457, 1994)

The excise tax in Ghana is 170.5% of the CIF value. This excise percentage, which is comparable to Rwanda and Burundi, sounds relatively high but it is only 33% of RSP $(23171/70174) \times 100\%$. If one includes all other taxes, the tax burden is 49% $((23171+2378+3398+5436)/70174) \times 100\%$. There is a strong incentive for the tobacco industry to reduce the CIF value, while increasing the margins of importers, wholesalers and retailers. These margins in the table above are 20%, 6% and 15% respectively. Although these margins seem reasonable, they are cumulative. The importers margin, wholesale margin and retail margin are 71%, 25% and 67% on CIF respectively.

A similar example is given for Kenya in Legacy Document 2074331342. The excise tax in Kenya in 1997 was 135% based on the ex factory price. The excise tax burden was 32% of RSP and the overall tax burden was 45% of RSP including the 25% import duty and 16% VAT (Legacy Document: 2074331342, 1998). The trade margin in Kenya was 11.8% of the RSP.

The financial structures described above are assumed to be similar to that of Burundi and Rwanda, due to the similar tax structure of high ad valorem excise rates calculated on the CIF value and the ex factory price. BAT, the importer of Lucky Strike in the Ghana case, continues to dominate market share in the EAC. It was not possible to obtain the wholesale and retail margin for Burundi and Rwanda, specifically, but one can assume these margins to be similar to those found in the example of Ghana above. The model will incorporate similar margins in the base case for countries with ad valorem excise tax, but these margins will remain variable.

Section 4 Methodology and Workings

4.1 Price elasticity

As excise taxes are increased, cigarette prices typically increase, as taxes are shifted to consumers. Cigarette consumption changes as a result of the price change, the magnitude depending on the price elasticity of demand (ϵ_p). The greater the price elasticity of demand (in absolute terms), the greater will be the reduction in consumption and the smaller the increase in government revenue (Sunley, 2009). The ϵ_p value for the model will start at -0.6 . This figure is based the IARC Handbook (2011) where it was found that the static ϵ_p in low and middle-income countries lies between -0.2 and -1.0 and the dynamic ϵ_p lies between -0.1 and -0.7 . Other static price elasticities to consider for the model include -0.4 and -0.8 .

Since the price change is a discrete amount, that is, not infinitesimally small, it is appropriate to use the arc elasticity formula, also known as the midpoint formula, rather than the point elasticity formula, to estimate the new point of consumption. The distinguishing characteristic of this formula is that percentage changes are calculated based on the average of the initial and ending values of each variable, rather than just the initial values. For minor changes in the price, the midpoint and the point elasticity formulas provide similar answers. However, for large price increases the point formula is inappropriate since it yields implausible answers. An example is given in van Walbeek (2010) with a price elasticity of -0.6 and a hypothetical 200% price increase. When the point elasticity formula is used, consumption would decrease by 120%, which is mathematically impossible. The arc formula would predict a more plausible decrease of 41.2%.

Once the new level of consumption has been calculated, the model calculates a new level of excise tax revenue, industry revenue and total consumption expenditure, based on the new consumption figures. The model then calculates percentage changes in the retail price, cigarette consumption, excise revenue, industry revenue and consumption expenditure. For most tobacco control advocates and policy makers, these are most important outputs of the model.

The value of the ϵ_p influences the relative size of the public health and fiscal benefits of an excise tax increase (van Walbeek, 2010). If the demand is more price elastic then the public health benefit is greater and the fiscal benefit smaller. However, if the demand is less price elastic then the fiscal benefit is greater and the public health benefit smaller.

4.2 Model Inputs

The model focuses on short-term (one-year) impacts of once-off changes in the excise tax. The input variables considered in the model include current consumption of imported and locally produced cigarettes, quantified in millions of sticks. The locally produced consumption is separated into up to four different market segments based on tax or price differentials. Kenya, Tanzania and Uganda are separated into market segments for domestic consumption, broken down according to price or tax, the segments range from low prices or taxes to high prices or taxes. Other input variables include the Net-of-Tax (NOT) price of cigarettes, the current excise tax rates, whether they are ad valorem or specific tax structures, import tariffs (MT), current VAT rates and the combined wholesale and retail margin (WRM) for countries with ad valorem tax structures only, i.e. Burundi and Rwanda. All import tariffs within the EAC region are 0% due to the common union agreement (EAC, 2012).

4.3 Mathematical Derivation of the Model

The model consists of (A) an initial equilibrium, (B) a subsequent excise tax change, which changes the price of each market segment as well as overall consumption and (C) a new equilibrium (van Walbeek, 2010). The model considers the change in a number of variables between the two equilibrium states. In the following derivation subscript 1 refers to the baseline equilibrium (A) and subscript 2 to the equilibrium after the change (C).

The retail price (P) can be subdivided into five components: the excise tax (ET), the import tariff (MT), a general sales tax or VAT (ST) and the remainder, the net-of-tax price (NOT), which in turn is the ex-works price (EW) plus the absolute value of the retail and wholesale margin (RWM). The NOT price data for different market segments was not accessible. I therefore calculated the NOT price working backwards from the retail price. If the quantum of the excise tax, VAT, import tariff and retail price are known then one can calculate the NOT price. The calculations employed in the model are shown below.

$$P = NOT + ET + MT + ST \quad (1)$$

A Sales tax of $(100.\alpha) \%$ is levied on $(NOT+ET+MT)$ for all EAC countries (Deloitte, 2011).

Thus follows:

$$P = (NOT + ET + MT) (1+\alpha) \quad (2)$$

Where $NOT=EW+ RWM$

4.3.1 Specific Excise Tax

In the case of a specific tax, the ET is determined independently of the NOT price. The Retail and Wholesale Margin (RWM) is levied as a percentage $100(\beta)\%$ of the Ex-works price (EW). The import tariff is also levied as a percentage $100(\zeta)\%$ on the ex works price. The EW is calculated as follows:

$$P = [EW + RWM + MT + ET](1 + \alpha) \quad (3)$$

$$P = [EW + \beta EW + \zeta EW + ET](1 + \alpha) \quad (4)$$

$$P/(1 + \alpha) = EW(1 + \beta + \zeta) + ET \quad (5)$$

$$EW = [P/(1 + \alpha) - ET]/(1 + \beta + \zeta) \quad (6)$$

Total cigarette consumption at the outset is Q_1 . Aggregate values are obtained as follows:

$$\text{Total expenditure by consumers: } P_1 \times Q_1 \quad (7)$$

$$\text{Total excise revenue: } ET \times Q_1$$

$$\text{Total industry revenue: } EW \times Q_1$$

4.3.2 Ad Valorem Excise Tax

In the case of an ad valorem tax, the Excise tax (ET) is levied as a percentage $(\Psi)\%$ on the ex-works price (EW).

The equation for the retail price can be seen below:

$$P = EW(1 + \beta + \Psi + \zeta)(1 + \alpha) \quad (8)$$

The Ex Works price is calculated as follows:

$$P/(1 + \alpha) = EW(1 + \beta + \Psi + \zeta) \quad (9)$$

$$EW = [P/(1 + \alpha)]/(1 + \beta + \Psi + \zeta) \quad (10)$$

4.3.3 The New Equilibrium

Once the initial equilibrium has been set up and the inputs of the model are in place then the new hypothetical specific or ad valorem excise tax (ET_2) is inputted together with the price

elasticity of demand (ϵ_P). As discussed earlier, tobacco companies have some control over the industry price (EW), given the highly concentrated nature of the industry. Often the industry will change the EW price for each market segment when the excise tax increases are instituted in line with government policy.

For a (100ω) % increase in the EW, the new industry price for each price segment is calculated as

$$EW_2 = EW_1(1+\omega) \quad (11)$$

Where $MT_2 = \zeta(EW_2)$ and $NOT_2 = EW_2 + RWM_2$

$$ST_2 = [NOT_2 + ET_2 + MT_2] \alpha \quad (12)$$

If the excise tax is levied as a specific tax, the new retail price (P_2) is calculated as

$$\begin{aligned} P_2 &= [EW_2 + \beta EW_2 + \zeta EW_2 + ET_2](1 + \alpha) \\ &= [EW_2(1 + \beta + \zeta) + ET_2](1 + \alpha) \end{aligned} \quad (13)$$

If the excise tax is levied ad valorem, the new retail price is calculated as:

$$P_2 = EW_2 (1 + \beta + \psi + \zeta)(1 + \alpha) \quad (14)$$

The new retail price P_2 for each market segment is calculated as follows:

$$P_2 = NOT_2 + ET_2 + MT_2 + ST_2 \quad (15)$$

The average price based on the price in each market segment (ms) can be calculated as follows:

$$P_2 = \sum_{i=1}^4 P_{2i} \cdot ms_i$$

Where

$$P_{2i} \cdot ms_i = NOT_2 \cdot ms_i + ET_2 \cdot ms_i + MT_2 \cdot ms_i + ST_2 \cdot ms_i$$

Once the price for each market segment (P_2) has been calculated, one can use the arc formulation of the price elasticity ($Ep = \frac{Q_2 - Q_1}{P_2 - P_1} \times \frac{P_1 + P_2}{Q_1 + Q_2}$) to solve for Q_2 as follows:

$$Q_2 = Q_1 [1 + Ep \left(\frac{P_2 - P_1}{P_1 - P_2} \right)] / [1 - Ep \left(\frac{P_2 - P_1}{P_1 - P_2} \right)]$$

One can then calculate the following aggregates:

Total expenditure by consumers: $P_2 \times Q_2$ (16)

Total excise revenue: $ET_2 \times Q_2$

Total industry revenue: $EW_2 \times Q_2$

In the final step, the model calculates the growth rates in the following variables: (1) average excise tax (2) average retail price, (3) consumption, (4) total expenditure, (5) total excise tax revenue and (6) total industry revenue.

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Section 5 Data Analysis

5.1 Data Discussion

The major challenge of this paper has been acquiring accurate information for the inputs of the model for each of the EAC countries. An extensive list of input variables including the year and source of the data can be found in Appendix B. The two major data incongruencies have been firstly, data confusion caused by different sources reporting different values for the same input variables and secondly, missing data for certain inputs. The former can be clearly demonstrated by prevalence figures for all EAC countries. Adult prevalence in Kenya 2008 ranged from 18.8% for males and 0.5% for females in the DHS to 48% adult prevalence reported by the ERC (ERC, 2010). I had to decide which prevalence rates were more credible depending on the definitions, methodology used and background reading. For prevalence figures I decided that the DHS is the most reliable source.

The Net of Tax (NOT) prices for different market segments are available from the respective Ministries of Finance (MoF) or the tobacco Industry. The MoF for countries that imposed an ad valorem excise tax were unresponsive in e-mail and telephone communication. Furthermore, due to the sensitive nature of this information and the industry practice of transfer pricing the industry do not publish NOT values or make them accessible to the public. As a result I had to calculate the ex-works price and the NOT price using algebraic equations, making assumptions about the Retail and Wholesale Margins (RWM) for countries that impose specific and ad valorem taxes. Based on research on the Legacy Documents, expounded in Section 3 above, the analysis regarding the RWM is based on educated guesses. Firstly, the RWM would be unimportant for countries that imposed a specific excise tax as there is less incentive for the industry to manipulate the NOT price downward. Secondly, I assumed that although the RWM would remain variable as a percentage of the ex-works price in the model, the base scenario and simulation would have a RWM of 100% of the ex works price for countries with an ad valorem excise tax, i.e. Burundi and Rwanda.

The excise tax structure in Uganda is separated into soft cup cigarettes with less than 70% local constituents and those with more than 70% local constituents. Cigarettes that meet the local constituent requirement are taxed around USD 0.20 less per pack (p.p.) than those that do not. As explained in Section 2 it is difficult to ascertain those that meet the requirement as all cigarettes are imported, and information regarding the local constituents is unavailable. Furthermore, data regarding the category for 'other cigarettes' in Uganda was unobtainable.

For this reason it was assumed that all soft cup packs are taxed at the higher tax of UGS 25000 per mille (USD 10.85) and there are no 'other cigarettes' taxed at an ad valorem rate of 160%.

Another variable that was difficult to obtain was the percentage of the market for the four price or tax segments. This information was available for Kenya and Tanzania; however the values for Kenya were taken across a number of different years, affecting the quality of the data. It is for this reason that the values for Tanzania were imputed to Uganda, Burundi and Rwanda, where market segments could not be found (see Appendix B). Furthermore, it is assumed that the low priced market segment does not contain a filter and the middle to premium segments do contain a filter.

The market shares in Kenya for the low priced segment were taken from the 2009 market share for plain cigarettes in the ERC report (ERC, 2010). The premium segment was calculated from the hard cap market segment in the ERC report, with the most recent available data being from 2004 (ERC, 2010). The remainder of the market share, 79.2%, was the overall market share for soft caps. This 79.2% of the market was divided into two segments, 84.5% for brands shorter than king size and 15.5% for king size brands according to 2009 statistics (ERC, 2010). The soft caps shorter than king size include brands such as Safari Regular and Rooster. These brands have been classified in the model as medium priced brands. The soft cap cigarettes longer than 72mm include brands such as Sportsman and Safari Kings. These brands have been classified as high priced brands. Locally produced cigarettes were classified as explained above, whereas imported cigarettes were separated into segments where possible.

Cigarettes that were imported to Kenya and Tanzania were assumed to belong to the premium price category only. The rationale for this being that Kenya and Tanzania produced all of the low, middle and high price segments locally. Kenya imports 1.8% of their domestic consumption from countries outside of the EAC, while Tanzania imports 1.3% from Kenya and countries outside of the EAC (ERC, 2010). Uganda, Burundi and Rwanda import all of their consumption from within the EAC, mainly from Kenya. It has been assumed that all four price segments are included in the imports from Kenya and are broken up into the ratios imputed from Tanzania. Other than imports from Kenya, Uganda imports 1.4% from Tanzania which is assumed to be of the high price market segment (ERC, 2010). Rwanda imports 99% of their total consumption from Kenya and 1% from Burundi, the latter being assumed to be of the high priced market segment only. Burundi imports 3.9% of their total consumption, almost all of which is imported from Kenya. In Burundi, the imports from Kenya

are assumed to be of the high price market segment only and those from other countries outside of the EAC are assumed to be of the premium priced market segment.

The excise tax for Burundi is 100% ad valorem. The base of the ad valorem tax was very difficult to obtain and therefore the base for Rwanda, the ex-works price, was imputed for the ad valorem excise in Burundi. Lastly production figures for Uganda and Rwanda are assumed to be negligible as there is no data available for production in these countries. BAT's production activities have been centralized in Kenya after the closure of its production plants in Uganda and Rwanda in 2006 (BAT Kenya, 2007). It is unclear whether there is a small amount of local production that remains within these countries.

The industry revenue in the model is calculated by multiplying the NOT price by the number of packs sold. This assumption was made considering the discussion above on trade margins and tax burdens. The Legacy Documents discussed in Section 3 revealed MoU's between the tobacco industry and distributors inferring that these entities are often related (Legacy Document: 321766670, 2000).

Section 6: Results

6.1 Base Scenarios

The tables below present the base scenario for each of the five EAC countries. The base scenario summarises the current position for each of the various price segments, as well as the total or average outcomes. The outcomes are given in the local currency for policy recommendations and in USD for comparative analysis.

The source of the input variables can be found in Appendix B and exchange rates in Appendix C. As discussed in section 5 above, the base scenario assumes a retail and wholesale margin (RWM) of 100% of the ex-works price for countries with an ad valorem excise tax, namely, Burundi and Rwanda.

Noteworthy points from the Kenyan base scenario are that the low priced brands is the only market segment bound by a specific tax, resulting in an excise tax rate of 48% of RSP i.e. KSH 24 or USD 0.29 (line 1 & 2) . All other price segments in Kenya are bound by the ad valorem excise of 35% on RSP (line 3 & 19). The value of these taxes range from KSH 25 (USD 0.30) per pack for the medium priced brands to KSH 49 (USD 0.59) for the premium priced brands (line 9 & 14). In this way the Kenyan specific tax acts as a tax floor, similar to that of the European Union.

The RSP in Kenya can be seen to range from KSH 50 (USD 0.60) per pack for the low priced brands to KSH 140 (USD 1.69) for the premium priced brands (line 11 & 16). The consumption figures in line 21 are broken up according to the market shares found in line 5. The highest consumption levels are found in the medium priced brands (66%) at 3746 million cigarettes, followed by the low priced brands (16%) at 884 million cigarettes and the medium priced brands (12%) at 687 million cigarettes. The premium priced cigarettes have the lowest market shares, with 5% being locally produced (280 million cigarettes) and 2% being imported (102 million cigarettes).

The Excise revenue in Kenya totals around KES 7669 million or USD 93 million (line 23 & 27). The medium priced brand contributes the most to this total, around KES 4589 million or USD 55 million due to the high market share of this brand alone. In the same way, the medium priced brand contributes the most to the industry revenue total (KES 6714 million or USD 81.09 million). Industry revenue totals around KES 10417 million or USD 126 million (line 24 & 28)

Table 6.1.1 Base Scenario: Kenya

BASE SCENARIO							
Line		Premium brand	High priced brand	Medium Priced Brand	Low priced brand	Imported premium	Total or Average
Inputs							
1	Specific excise tax p.p. local currency	N/A	N/A	N/A	24.0	N/A	
2	Specific excise tax p.p. USD				0.29		
3	Ad valorem excise rate	35% on RSP	35% on RSP	35% on RSP	N/A	35% on RSP	
4	VAT rate (%)	16	16	16	16	16	
5	Market share (percentage)	5	12	66	16	2	
6							
7	Outputs						
8	NOT price (KES p.p.)	72	46	36	19	53	37
9	Excise tax (KES p.p.)	49	32	25	24	49	27
10	VAT (KES p.p.)	19	12	10	7	19	10
11	Retail price (KES p.p.)	140	90	70	50	140	74
12							
13	NOT price (USD p.p.)	0.87	0.56	0.43	0.23	0.64	0.44
14	Excise tax (USD p.p.)	0.59	0.38	0.30	0.29	0.59	0.32
15	VAT (USD p.p.)	0.23	0.15	0.12	0.08	0.23	0.12
16	Retail price (USD p.p.)	1.69	1.09	0.85	0.60	1.69	0.89
17							
18	Binding excise tax	Ad valorem	Ad valorem	Ad valorem	Specific	Ad valorem	
19	Excise tax as % of RSP	35	35	35	48	35	37
20							
21	Cigarette consumption (million cigarettes)	280	687	3746	884	102	5700
22							
23	Excise revenue (million KES)	686	1082	4589	1061	250	7669
24	Industry revenue (million KES)	1003	1584	6714	845	271	10417
25	Total Consumption Expenditure (million KES)	1959	3092	13112	2211	714	21089
26							
27	Excise revenue (million USD)	8.28	13.07	55.43	12.82	3.02	92.62
28	Industry revenue (million USD)	12.12	19.12	81.09	10.20	3.27	125.81
29	Total Consumption Expenditure (million USD)	23.66	37.35	158.36	26.71	8.62	254.70

*p.p. = per pack

The base scenario for Tanzania, presented in the table below, reveals that it has the lowest average excise tax in the EAC, of only 18% of RSP (line 19). It also has the lowest excise tax across all cigarette brands in the EAC, with an excise of only 10% of RSP for premium brands such as Marlboro. The excise rate has a small range, reaching its highest at only 19% for medium priced brands. The average excise tax, in monetary terms, however, is USD 0.22 p.p. (line 14). This is equal to the excise quantum in Uganda and higher than that of Burundi (USD 0.18 p.p.).

The relatively low excise tax rates in Tanzania results in government excise revenue of only USD 62 million (line 27) compared to that of Kenya, USD 93 million. Total government excise revenue in Tanzania is much lower despite the higher average retail price of USD 1.25 per pack (p.p.) compared to the average retail price in Kenya of USD 0.89 p.p. (line 16).

Kenya's consumption exceeds Tanzanian consumption by 180 million cigarettes or 3% (line 21). Although the excise tax revenue in Tanzania is lower, the industry revenue is much greater than in Kenya (USD 126 million) at USD 229 million. It is in fact greater than all other EAC industry revenue figures combined (line 28). A contributing factor is the high average NOT price of USD 0.83 p.p. (line 13).

Table 6.1.2 Base Scenario: Tanzania

BASE SCENARIO								
Line		Premium Brand	High Priced Brand	Medium Priced Brand	Low Priced Brand	Imported premium (non-EAC)	Imported premium (EAC)	Total or Average
Inputs								
1	Specific excise tax p.p. local currency	388	388	388	164	702	702	
2	Specific excise tax p.p. USD	0.20	0.20	0.20	0.10	0.40	0.40	
3	Ad valorem excise rate	N/A	N/A	N/A	N/A	N/A	N/A	
4	VAT rate (%)	18	18	18	18	18	18	
5	Market share (percentage)	1	6	75	16	1	1	
6								
7 Outputs								
8	NOT price (TZS p.p.)	3002	2154	1353	683	1991	2687	1324
9	Excise tax (TZS p.p.)	388	388	388	164	702	702	356
10	VAT (TZS p.p.)	610	458	313	153	610	610	303
11	Retail price (TZS p.p.)	4000	3000	2055	1000	4000	4000	1989
12								
13	NOT price (USD p.p.)	1.88	1.35	0.85	0.43	1.25	1.69	0.83
14	Excise tax (USD p.p.)	0.24	0.24	0.24	0.10	0.44	0.44	0.22
15	VAT (USD p.p.)	0.38	0.29	0.20	0.10	0.38	0.38	0.19
16	Retail price (USD p.p.)	2.51	1.88	1.29	0.63	2.51	2.51	1.25
17								
18	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	Specific	
19	Excise tax as % of retail price	10	13	19	16	18	18	18
20								
21	Cigarette consumption (million cigarettes)	60	349	4142	899	42	28	5520
22								
23	Excise revenue (million TZS)	1164	6770	80396	7383	1475	983	98171
24	Industry revenue (million TZS)	8997	37569	280274	30721	4181	3762	365504
25	Total Consumption Expenditure (million TZS)	11990	52320	425591	44963	8400	5600	548863
26								
27	Excise revenue (million USD)	0.73	4.25	50.47	4.63	0.93	0.62	61.63
28	Industry revenue (million USD)	5.65	23.58	175.94	19.28	2.62	2.36	229.44
29	Total Consumption Expenditure (million USD)	7.53	32.84	267.16	28.23	5.27	3.52	344.55

*p.p. = per pack

In Uganda, like Tanzania, the binding excise tax is specific across all price segments (line 18), with an average excise quantum of USD 0.22 p.p. (line 14), 26% of RSP (line 19). The excise tax for all price segments, except for the imported premium brands, is USD 0.22 p.p. due to the structure of the excise and accompanying assumptions explained in section 5 above. The total government excise revenue in Uganda is USD 10.17 million (line 27) and total industry revenue is USD 23.44 million (line 28). The average NOT price of USD 0.51

p.p. (line 13) is the second highest after Tanzania, while the average retail price is USD 0.86 p.p., with a range of around USD 1.10 from low to premium priced brands (line16).

Table 6.1.3 Base Scenario: Uganda

		BASE SCENARIO					
Line		Imported Premium brand (KE)	Imported High priced brand (KE)	Imported Medium Priced Brand (KE)	Imported low priced brand (KE)	Imported high priced brand (TZ)	Total or Average
Inputs							
1	Specific excise tax p.p. local currency	1100	500	500	500	500	
2	Specific excise tax p.p. USD	0.5	0.2	0.2	0.2	0.2	
3	Ad valorem excise rate	N/A	N/A	N/A	N/A	N/A	
4	VAT rate (%)	18	18	18	18	18	
5	Market share (percentage)	1	6	75	17	1	
6							
7 Outputs							
8	NOT price (UGS p.p.)	2290	1619	1195	771	1619	1166
9	Excise tax (UGS p.p.)	1100	500	500	500	500	506
10	VAT (UGS p.p.)	610	381	305	229	381	301
11	Retail price (UGS p.p.)	4000	2500	2000	1500	2500	1973
12							
13	NOT price (USD p.p.)	0.99	0.70	0.52	0.33	0.70	0.51
14	Excise tax (USD p.p.)	0.48	0.22	0.22	0.22	0.22	0.22
15	VAT (USD p.p.)	0.26	0.17	0.13	0.10	0.17	0.13
16	Retail price (USD p.p.)	1.74	1.08	0.87	0.65	1.08	0.86
17							
18	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	
19	Excise tax as % of retail price	28	20	25	33	20	26
20							
21	Cigarette consumption (million cigarettes)	9	55	695	155	13	927
22							
23	Excise revenue (million UGS)	503	1371	17366	3885	325	23450
24	Industry revenue (million UGS)	1046	4438	41503	5991	1052	54031
25	Total Consumption Expenditure (million UGS)	1828	6855	69466	11654	1625	91428
26							
27	Excise revenue (million USD)	0.22	0.59	7.53	1.69	0.14	10.17
28	Industry revenue (million USD)	0.45	1.93	18.01	2.60	0.46	23.44
29	Total Consumption Expenditure (million USD)	0.79	2.97	30.14	5.06	0.70	39.66

*p.p. = per pack

In Burundi and Rwanda, tabulated below, the binding excise tax on all price segments is ad valorem (line 17) with average excise rates of 28% and 36% of RSP respectively (line 18). The Retail and Wholesale Margin (RWM) is assumed to be 100% on the ex works price as discussed previously (line 4). The NOT price can be broken down into 50% ex-work price and 50% RWM for both Burundi and Rwanda according to the assumptions.

The lowest average retail price in the EAC is found in Burundi at an average of USD 0.64 p.p. (line 15). This is in spite of the fact that retail prices for premium brands in Burundi are higher than all other premium brands sold in the EAC at USD 3.08 p.p. (line 15). This reveals

how relatively cheap the low priced brands are at only USD 0.38 p.p. (line 15). NOT prices in Burundi also have a high range, from USD 0.22 to USD 1.74 (line 12).

Table 6.1.4 Base Scenario: Burundi

		BASE SCENARIO						
Line		Premium brand	High priced brand	Medium Priced Brand	low priced brand	Imported premium other	Imported from high priced brand from EAC	Total or Average
Inputs								
1	Ad valorem excise rate (% on EW)	100	100	100	100	100	100	
2	VAT rate (%)	18	18	18	18	18	18	
3	Market share (percentage)	1	6	73	16	0	4	
4	Retail & Wholesale margin (% on ex-works price)	100	100	100	100	100	100	
5								
6 Outputs								
7	NOT price (BIF p.p.)	2260	734	452	282	2119	734	473
8	Excise tax (BIF p.p.)	1130	367	226	141	1059	367	236
9	VAT (BIF p.p.)	610	198	122	76	610	198	128
10	Retail price (BIF p.p.)	4000	1300	800	500	4000	1300	836
11								
12	NOT price (USD p.p.)	1.74	0.57	0.35	0.22	1.63	0.57	0.36
13	Excise tax (USD p.p.)	0.87	0.28	0.17	0.11	0.82	0.28	0.18
14	VAT (USD p.p.)	0.47	0.15	0.09	0.06	0.47	0.15	0.10
15	Retail price (USD p.p.)	3.08	1.00	0.62	0.38	3.08	1.00	0.64
16								
17	Binding excise tax (specific or ad valorem)	Ad valorem	Ad valorem	Ad valorem	Ad valorem	Ad valorem	Ad valorem	
18	Excise tax as % of retail price	28	28	28	28	26	28	28
19								
20	Cigarette consumption (million cigarettes)	5	30	357	78	0	19	489
21								
22	Excise revenue (million BIF)	292	552	4036	548	1	349	5777
23	Industry revenue (million BIF)	584	1105	8072	1095	1	697	11555
24	Total Consumption Expenditure (million BIF)	1034	1955	14288	1939	2	1234	20452
25								
26	Excise revenue (million USD)	0.22	0.43	3.11	0.42	0.00	0.27	4.45
27	Industry revenue (million USD)	0.45	0.85	6.21	0.84	0.00	0.54	8.90
28	Total Consumption Expenditure (million USD)	0.80	1.51	11.00	1.49	0.00	0.95	15.74

*p.p. = per pack

In the base scenario for Rwanda, the average excise tax is USD 0.31, second only to Kenya (line 13). Rwanda also has the second highest average excise tax rate, at 36% of RSP (line 18), only 1% behind Kenya (line 19). The high excise rate contributes to greater excise revenue because although local consumption of cigarettes is only 277 million cigarettes (line 20), the lowest of all EAC countries, the total excise revenue is USD 4.36 million, only slightly less than that of Burundi at USD 4.45 million (line 26). Local cigarette consumption in Burundi is almost double that of Rwanda at 489 million cigarettes (line 20).

Line 15, below, shows that the retail price p.p. in Rwanda ranges from USD 0.50 to USD 2.20, with an average of USD 0.87, while the NOT price has a range of USD 0.74 (line 12). The

industry revenue in Rwanda is USD 5.81 million, almost USD 3.1 million less than Burundi (line 27).

Table 6.1.5 Base Scenario: Rwanda

		BASE SCENARIO					
Line		Imported Premium brand (KE)	Imported High priced brand (KE)	Imported Medium Priced Brand (KE)	Imported low priced brand (KE)	Imported low priced brand (BU)	Total or Average
Inputs							
1	Ad valorem excise rate (% on ex-works price)	150	150	150	150	150	
2	VAT rate (%)	18	18	18	18	18	
3	Market share (percentage)	1	6	75	16	1	
4	Retail & Wholesale margin (% on ex-works price)	100	100	100	100	100	100
5							
Outputs							
7	NOT price (RWF p.p.)	581	508	242	145	508	250
8	Excise tax (RWF p.p.)	436	381	182	109	381	187
9	VAT (RWF p.p.)	183	160	76	46	160	79
10	Retail price (RWF p.p.)	1200	1050	500	300	1050	515
11							
12	NOT price (USD p.p.)	0.98	0.85	0.41	0.24	0.85	0.42
13	Excise tax (USD p.p.)	0.73	0.64	0.31	0.18	0.64	0.31
14	VAT (USD p.p.)	0.31	0.27	0.13	0.08	0.27	0.13
15	Retail price (USD p.p.)	2.02	1.76	0.84	0.50	1.76	0.87
16							
17	Binding excise tax (specific or ad valorem)	Ad valorem	Ad valorem	Ad valorem	Ad valorem	Ad valorem	
18	Excise tax as % of retail price	36	36	36	36	36	36
19							
20	Cigarette consumption (million cigarettes)	3	18	208	45	3	277
21							
22	Excise revenue (million RWF)	66	335	1892	247	53	2592
23	Industry revenue (million RWF)	88	446	2523	329	70	3456
24	Total Consumption Expenditure (million RWF)	181	921	5210	679	145	7137
25							
26	Excise revenue (million USD)	0.11	0.56	3.18	0.41	0.09	4.36
27	Industry revenue (million USD)	0.15	0.75	4.24	0.55	0.12	5.81
28	Total Consumption Expenditure (million USD)	0.30	1.55	8.76	1.14	0.24	11.99

*p.p. = per pack

In all the EAC countries, the middle priced brands contribute the most towards total excise revenue, industry revenue and total consumption expenditure (line 27-29 & line 26-28). This is expected due to the high market share of around 76% for this brand alone (line 5 & line 3).

Table 6.1.6 Base Scenario Averages and Totals

Base Scenario EAC Aggregates							
Line		Kenya	Tanzania	Uganda	Burundi	Rwanda	EAC Averages or Totals
1							
2	Excise Tax (USD per pack)	0.32	0.22	0.22	0.18	0.31	0.27
3	Retail Price (USD per pack)	0.89	1.25	0.86	0.64	0.86	1.03
4	Consumption (million cigarettes)	5700	5520	927	489	277	12913
5	Industry Revenue (million USD)	126	229	23	9	6	393
6	Government Excise revenue (million USD)	93	62	10	4	4	173
7	Total Consumption Expenditure (million USD)	256	345	40	16	12	669
8	Excise tax as a % of Retail Price	37	18	26	28	36	28

The table above compares each EAC country in terms of their aggregate excise tax, retail price, consumption, industry revenue, government excise revenue, total consumption expenditure and excise tax as a % of Retail Selling Price (RSP). Comparatively Kenya has the highest excise tax of USD 0.32 (37% of RSP) followed by Burundi at USD 0.31 (28% RSP) and Tanzania and Uganda at USD 0.22. The excise tax in Tanzania is 18% of RSP and in Uganda it is 26% of RSP (line 8). Rwanda has the lowest excise tax at USD 0.18, 36% of RSP (line 2 & 8). Burundi has the lowest aggregate RSP of USD 0.64 followed by Uganda and Rwanda at USD 0.86, Kenya at USD 0.89 and Tanzania at USD 1.25 (line 3).

Consumption figures have a large range across the EAC. Rwanda consumes the least amount of cigarettes at around 277 million, followed by Burundi with 489 million and Uganda with 927 million (line 4). Tanzania has the second highest consumption figures at 5.5 billion cigarettes and Kenya the highest at 5.7 billion cigarettes (line 4). Industry revenues are highest in Tanzania at USD 229 million, followed by Kenya at USD 126 million and Uganda at USD 23 million. Burundi has an industry revenue of USD 9 million and Rwanda has the lowest industry revenue of around USD 6 million.

Government excise revenue is highest in Kenya at USD 93 million followed by Tanzania at USD 62 million and Uganda at USD 10 million. Burundi and Rwanda have the lowest excise revenue of around USD 4 million. Total consumption expenditure is highest in Tanzania at around USD 345 million, followed by Kenya at USD 256 million and Uganda at USD 40 million. Total consumption expenditure drops to around USD 16 million in Burundi and USD 12 million in Rwanda (line 7).

Overall EAC Averages

The domestic production of cigarettes in the EAC has a weighted average Retail Selling Price (RSP) of USD 1.04 p.p.. Imported consumption from EAC countries retails on average at USD 0.89 p.p. and those imported from non- EAC countries retail around USD 1.93 pp. The average RSP recorded in 2009 for low income countries is USD 1.06 p.p., this is similar to the weighted average retail price for domestic consumption in the EAC of USD 1.04 p.p. (IARC, 2012).

The weighted average excise tax for domestic production in the EAC is 27% of RSP; for imported consumption from EAC countries this figure rises to 28%, and for imported consumption from non-EAC countries it increases to 29% of RSP. When comparing the average excise tax in the EAC as a percentage of RSP to those of other low-income countries, one finds that all EAC countries are below the low-income country average of 39% of RSP. Moreover, on average the tax rates for low-income countries are around 40% lower than those of high income countries (IARC, 2012). The global average excise tax rate recorded by the World Bank in 2009 was 50% of RSP, compared to 28% of RSP in EAC countries (line 8, IARC, 2012). The WHO recommends that countries should set an excise tax that is at least 70% of the retail price of a pack of cigarettes (WHO, 2010).

In line with article 6 of the FCTC, global excise tax averages and WHO recommendations, this paper will simulate the effects of an increase in the excise tax rate together with a harmonized excise structure. The structures used will include a uniform specific tax and a mixed tax structure with a specific tax and an ad valorem excise based on the RSP, according to the discussion in section 2.

6.2 Different Tax Scenarios

This thesis will present a number of excise tax scenarios for the EAC below. These are the following:

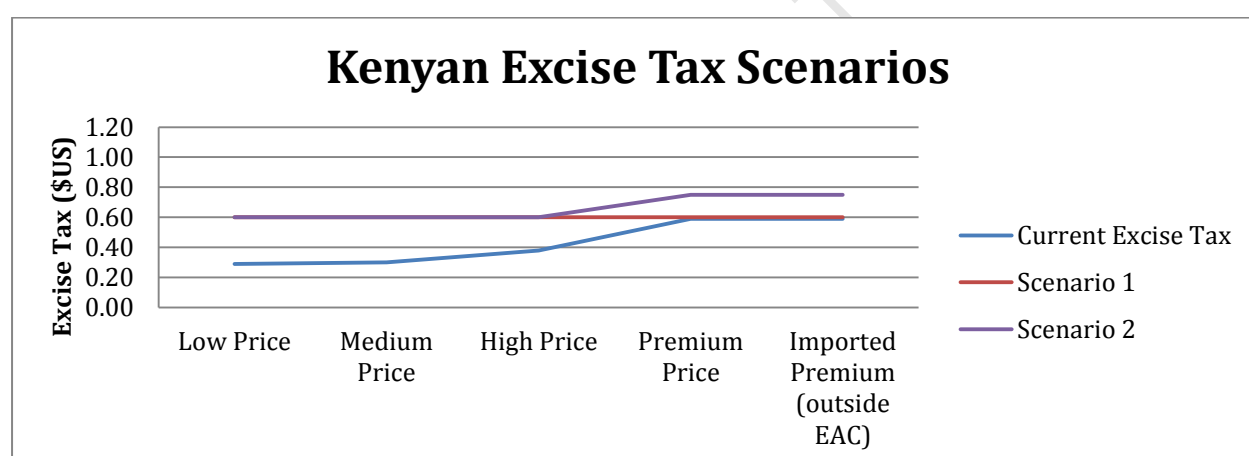
1. Increasing and harmonising the excise tax to a uniform specific tax of USD 0.60 on all market segments across all EAC countries. This scenario will assume a price elasticity (ϵ_p) of -0.6 and no change in the Net of Tax (NOT) price.

The above assumptions will be tested for their robustness through the following sensitivity analysis:

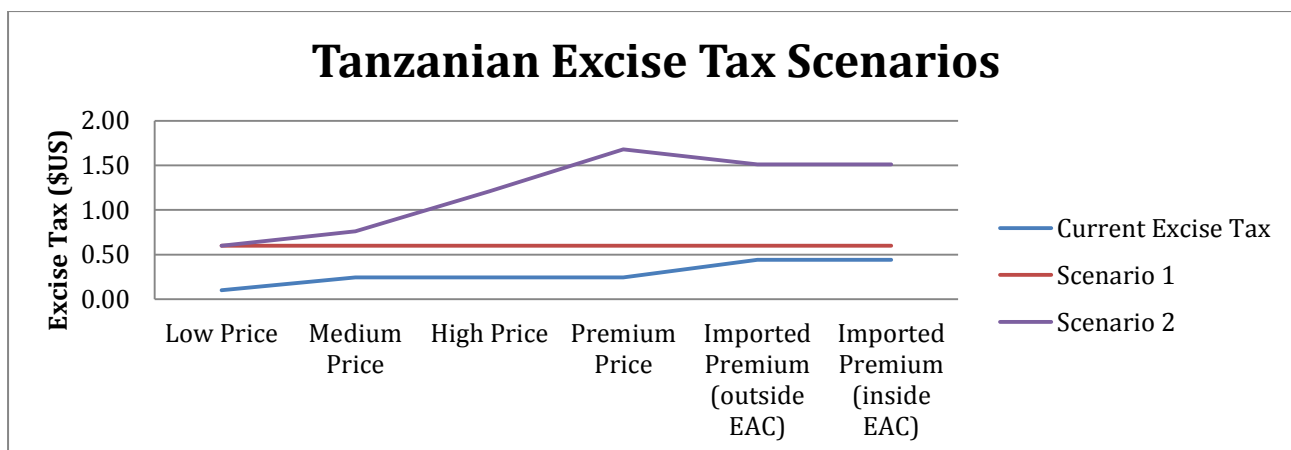
- A. An increase in the ϵ_p from -0.6 to -0.8
- B. A decrease in the ϵ_p from -0.6 to -0.4
- C. An increase in the NOT price of 20%, implying a strategy of overshifting the tax by the industry
- D. A decrease in the NOT price by 20%, implying a strategy of undershifting the tax by the industry
- E. An increase in the uniform specific tax from 0.60 to 0.80
- F. A decrease in the uniform specific tax from 0.60 to 0.40

2. Increasing and harmonising the excise tax to a uniform specific tax of USD 0.60 or an ad valorem excise tax of 40% of RSP, whichever is higher. This adaptation from scenario 1 will be applied to all market segments across all EAC countries.

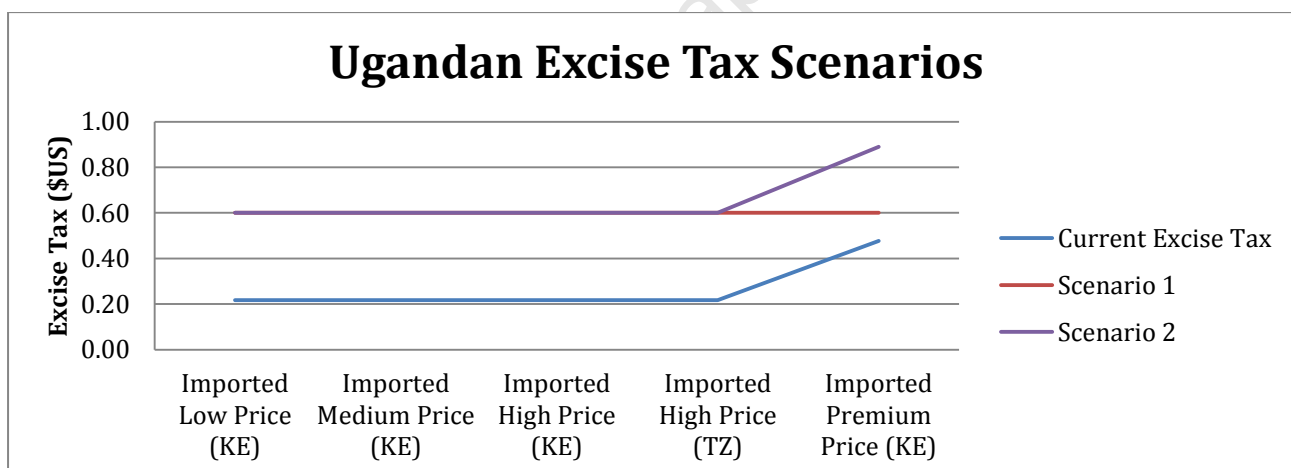
The full results, together with the input values are shown in appendix D. The graphs below present a summary of the current and simulated excise tax for each market segment and country in the EAC.



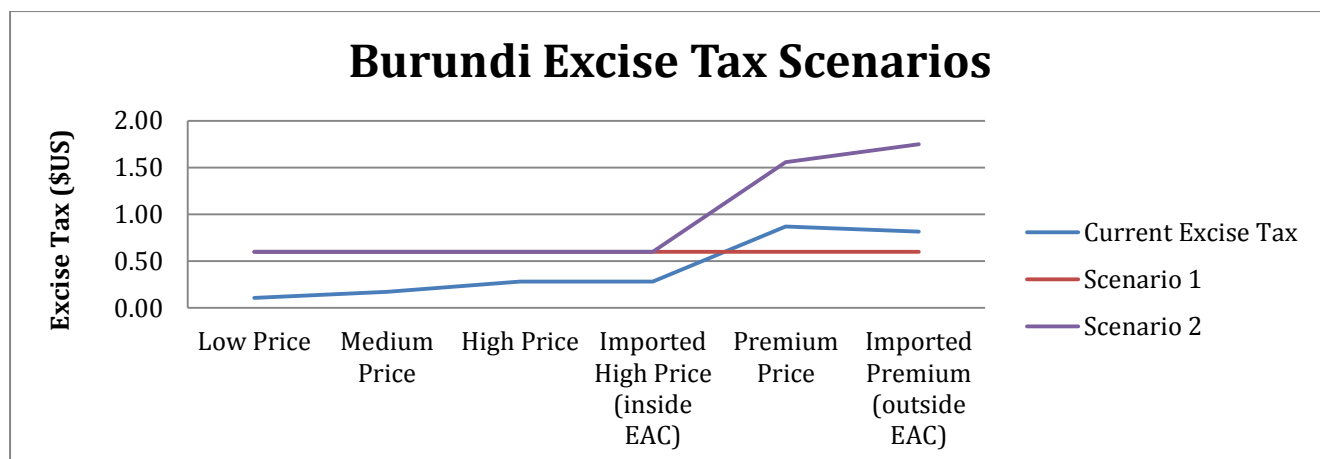
The graph above shows that in Kenya the excise tax in Scenario 1 and 2 is consistently higher than the current excise tax in the low, medium and high priced market segments. In the low and medium priced segments the excise tax is 100% greater in Scenario 1 and 2 than in the base scenario. Lastly, Scenario 2 deviates from Scenario 1 with an increase of around 30% in the premium priced segments due to the 40% ad valorem component of Scenario 2.



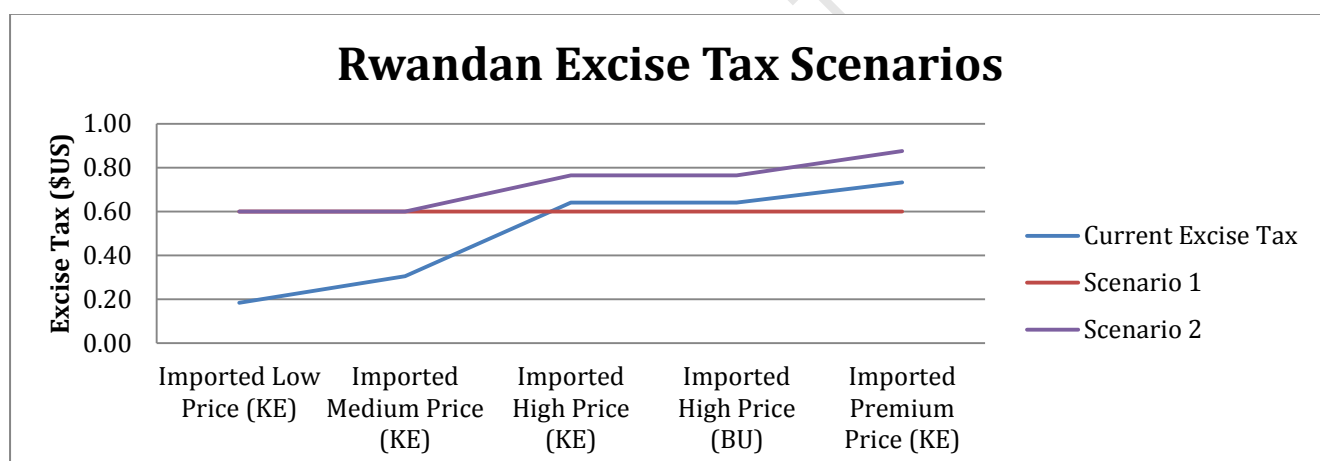
In Tanzania, the excise tax in Scenario 1 and 2 is higher than that of the Base scenario across all market segments. The excise tax in Scenario 2 is also consistently greater than that of Scenario 1 in all market segments except for the low price market segment, where the tax is the same as in Scenario 1. The greatest difference in excise tax between Scenario 1 and 2 is around USD1.10 found in the locally produced Premium price brand.



The Ugandan graph shows that the excise taxes for Scenario 1 and 2 are 200% greater than the current excise tax, for all market segments except for the premium price category imported from Kenya. Scenario 2 shows an increase in the excise tax to around USD 0.90 in the imported premium segment.



In Burundi, Scenario 1 and 2 both have an excise of USD 0.60 for all market segments except for the premium priced segments. In the premium priced segments Scenario 2 shows an increase in the excise tax to around USD 1.60 for the domestic premium brands and USD 1.75 for imported premium brands.



The above graph shows that Scenario 1 and 2 diverge in the high and premium priced segments, where the current excise tax is greater than that of Scenario 1. However, in the medium priced segment with the largest market share, the excise tax in Scenario 1 and 2 is 100% greater than that of the base scenario.

6.3 Scenario 1: Increasing and Harmonising the Excise Tax to a Uniform Specific Tax of USD 0.60

The increase in the excise tax on all brands to a uniform specific tax of USD 0.60 was chosen because the USD 0.60 value ensures an increase in excise tax in all EAC countries and in most market segments. The uniform specific structure was selected because of the

benefits of a single specific tax, explained in section 2.4. This increase will have a significant impact on the retail price, especially those of low and medium priced brands. The differential impact on the retail price will also have a differential effect on the consumption of different brands of cigarettes. The results of the Base Scenario will be tabulated and compared with the results of Scenario 1. The percentage changes are noted for the excise tax, retail price, consumption, industry revenue and government excise revenue variables.

Table 6.3.1: Comparing Selected Results from Scenario 1 to the Base Scenario: Kenya

Kenya Scenario 1							
Line		Premium Brand	High Priced Brand	Medium Priced Brand	Low Priced Brand	Imported Premium	Total or Average
1	Base Excise tax (USD p.p.)	0.59	0.38	0.30	0.29	0.59	0.32
2	Excise tax Scenario 1	0.60	0.60	0.60	0.60	0.60	0.60
3	% change	1	58	103	107	1	89
4	Base Retail price (USD p.p.)	1.69	1.09	0.85	0.60	1.69	0.89
5	Retail Price Scenario 1	1.70	1.34	1.20	0.96	1.70	1.22
6	% change	1	23	42	60	1	37
7	Base Consumption (million cigarettes)	280	687	3746	884	102	5700
8	Consumption (million cigarettes) Scenario 1	279	606	3043	670	102	4700
9	% change	0	-12	-19	-24	0	-18
10	Base Industry revenue (million USD)	12.12	19.12	81.09	10.20	3.27	125.81
11	Industry revenue (million USD) Scenario 1	12.08	16.86	65.87	7.73	3.26	105.80
12	% change	0	-12	-19	-24	0	-15.9
13	Base Excise revenue (million USD)	8.28	13.07	55.43	12.82	3.02	92.62
14	Excise revenue (million USD) Scenario 1	8.37	18.18	91.30	20.11	3.05	141.00
15	% change	1	39	65	57	1	52

Before the increase in the excise tax, the weighted average binding excise tax was USD 0.32 per pack (line 1). If the excise tax were to increase to a specific excise of USD 0.60, the average Retail Selling Price (RSP) of all brands would increase from USD 0.89 to USD 1.22, an increase of 37%. The increase in RSP is highest for the low priced brands, with an increase of 60%, followed by the medium (42%) and high priced brands (23%). The increase in RSP is lowest for the premium brands with an increase of only 1% (line 6). This is expected as the tax is currently low on cheap cigarettes and high on expensive cigarettes due to the ad valorem component. A uniform specific tax will result in greater increases in the RSP of low priced cigarettes than on high priced cigarettes.

Given an assumed price elasticity of demand of -0.6, total consumption decreases by around 1 billion cigarettes from 5,7 billion to 4,7 billion, a decrease of 18% (line 7, 8 & 9). The low

priced segment has the largest consumption decline of 24% while both local and imported premium brands show negligible decreases in consumption. These percentage changes are almost identical to those of industry revenue, revealing that low and medium priced brands are the major contributors of the USD 21 million decline in industry revenue.

The quantum of excise tax per pack increases by a weighted average of 89%. As a result of the 89% increase in the excise tax per pack and the 18% decrease in cigarette consumption, average excise revenue is expected to increase by 52% from a total excise revenue of USD 92 million across all brands to USD 141 million (line 13, 14 & 15).

Table 6.3.2: Comparing Selected Results from Scenario 1 to the Base Scenario: Tanzania

		Tanzania Scenario 1						Total or Average
Line		Premium Brand	High Priced Brand	Medium Priced Brand	Low Priced Brand	Imported Premium (non-EAC)	Imported Premium (EAC)	
1	Base Excise tax (USD p.p.)	0.24	0.24	0.24	0.10	0.44	0.44	0.22
2	Excise tax Scenario 1	0.60	0.60	0.60	0.60	0.60	0.60	0.60
3	% change	146	146	146	482	36	36	190
4	Base Retail price (USD p.p.)	2.51	1.88	1.29	0.63	2.51	2.51	1.25
5	Retail Price Scenario 1	2.93	2.30	1.71	1.21	2.70	2.70	1.71
6	% change	17	22	33	93	8	8	37
7	Base Consumption (million cigarettes)	60	349	4142	899	42	28	5520
8	Consumption (million cigarettes) Scenario 1	55	309	3500	611	40	27	4541
9	% change	-9	-11	-16	-32	-4	-4	-18
10	Base Industry revenue (million USD)	5.65	23.58	175.94	19.28	2.62	2.36	229.44
11	Industry revenue (million USD) Scenario 1	5.15	20.90	148.65	13.10	2.51	2.26	192.58
12	% change	-9	-11	-16	-32	-4	-4	-16
13	Base Excise revenue (million USD)	0.73	4.25	50.47	4.63	0.93	0.62	61.63
14	Excise revenue (million USD) Scenario 1	1.64	9.27	104.99	18.32	1.21	0.80	136.24
15	% change	124	118	108	295	30	30	121

*p.p. = per pack

In the base scenario, the weighted average binding excise tax in Tanzania was USD 0.22 per pack. If the excise tax increased to a specific excise of USD 0.60, the average Retail Selling Price (RSP) of all brands would increase from USD 1.25 to USD 1.71 (line 5), an increase of around 37% (line 6). The increase in RSP is highest for the low priced brands, with an increase of 93%, followed by the medium (33%), high priced (22%), and premium (17%) brands. The increase in RSP is lowest for imported premium brands (EAC and non-EAC) with an increase of around 8% (line 6), as the increase in the excise tax in these market segments is relatively low at USD 0.16 (line 1 & 2).

Total consumption in Tanzania would be expected to decrease by around 1 billion cigarettes from 5,5 billion to 4,5 billion (line 7 & 8), a decrease of around 18% (line 9). The low priced segment has the highest consumption decline of 32% followed by the middle (16%) and high priced brands (11%) (line 9). Both local and imported premium brands show small decreases in consumption, around 9% and 4% respectively. These percentage changes are almost identical to those of industry revenue (line 12), showing that increases in the excise tax in the low and medium priced brands contribute the most to the overall US\$36 million decline in industry revenue (line 10 & 11).

The quantum of excise tax per pack increases by 190%. As a result of this increase, average excise revenue is expected to increase by 121% from a total excise revenue of USD 61 million across all brands to USD 136 million. Excise revenue increases by the most in the low priced brands (295%), followed by the premium brands (125%), high priced brands (118%), middle priced brands (108%) and, lastly, imported premium brands (30%).

Table 6.3.3: Comparing Selected Results from Scenario 1 to the Base Scenario: Uganda

Uganda Scenario 1						
Line		Imported Premium brand (KE)	Imported High priced brand (KE)	Imported Medium Priced Brand (KE)	Imported low priced brand (KE)	Imported high priced brand (TZ)
1	Base Excise tax (USD p.p.)	0.48	0.22	0.22	0.22	0.22
2	Excise tax Scenario 1	0.60	0.60	0.60	0.60	0.60
3	% change	26	177	177	177	177
4	Base Retail price (USD p.p.)	1.74	1.08	0.87	0.65	1.08
5	Retail Price Scenario 1	1.88	1.54	1.32	1.10	1.54
6	% change	8	42	52	70	42
7	Base Consumption (million cigarettes)	9	55	695	155	13
8	Consumption (million cigarettes) Scenario 1	9	45	541	114	11
9	% change	-5	-19	-22	-27	-19
10	Base Industry revenue (million USD)	0.45	1.93	18.01	2.60	0.46
11	Industry revenue (million USD) Scenario 1	0.43	1.56	14.03	1.90	0.37
12	% change	-5	-19	-22	-27	-19
13	Base Excise revenue (million USD)	0.22	0.59	7.53	1.69	0.14
14	Excise revenue (million USD) Scenario 1	0.26	1.34	16.24	3.41	0.32
15	% change	19.8	124.7	115.6	102.5	124.7

The current weighted average binding excise tax in Uganda is USD 0.22 per pack. If the excise tax were to increase to a specific excise of USD 0.60, the average Retail Selling Price (RSP) of all brands would increase from USD 0.85 to USD 1.30, an increase of 54% (line 4 & 5). The increase in RSP is highest for the low priced brands imported from Kenya, with an increase of 70%, followed by the imported medium priced brand (52%) and high priced

brands (42%). The increase in RSP is lowest for the premium brands with an increase of 8% (line 6).

With a price elasticity of demand of -0.6, total consumption decreases by around 209 million cigarettes from 927 million to 718 million, a decrease of 22%. The low priced segment has the highest consumption decline of 27% followed by the medium priced brand, high priced brands and premium brands with declines of 22%, 19% and 5% respectively (line 9). These percentage changes are identical to those of industry revenue, showing that low and medium priced brands contribute the most to the USD 5 million decline in industry revenue (line 10 & 11).

The quantum of excise tax per pack increases by 175% (line 3). As a result of this increase and the 22% decrease in cigarette consumption, average excise revenue is expected to increase by around 110% from a total excise revenue of USD 10 million across all brands to nearly USD 22 million (line 13 & 14).

Table 6.3.4: Comparing Selected Results from Scenario 1 to the Base Scenario: Burundi

Burundi Scenario 1								
Line		Premium Brand	High Priced Brand	Medium Priced Brand	Low Priced Brand	Imported Premium (non-EAC)	Imported high priced brand (EAC)	Total or Average
1	Base Excise tax (USD p.p.)	0.87	0.28	0.17	0.11	0.82	0.28	0.18
2	Excise tax Scenario 1	0.60	0.60	0.60	0.60	0.60	0.60	0.60
3	% change	-31	112	245	452	-26	112	252
4	Base Retail price (USD p.p.)	3.08	1.00	0.62	0.38	3.08	1.00	0.64
5	Retail Price Scenario 1	2.76	1.38	1.12	0.96	3.02	1.38	1.15
6	% change	-10	37	82	151	-2	37	80
7	Base Consumption (million cigarettes)	5	30	357	78	0	19	489
8	Consumption (million cigarettes) Scenario 1	6	25	251	46	0	16	343
9	% change	7	-17	-30	-41	1	-17	-30
10	Base Industry revenue (million USD)	0.45	0.85	6.21	0.84	0.00	0.54	8.90
11	Industry revenue (million USD) Scenario 1	0.48	0.70	4.37	0.50	0.00	0.44	6.50
12	% change	7	-17	-30	-41	1	-17	-27
13	Base Excise revenue (million USD)	0.22	0.43	3.11	0.42	0.00	0.27	4.45
14	Excise revenue (million USD) Scenario 1	0.17	0.75	7.54	1.37	0.00	0.47	10.30
15	% change	-26.4	75.6	142.7	225.7	-25.5	75.6	131.5

Prior to the simulated increase in the excise tax, the average binding excise tax was USD 0.18 per pack. If the excise tax increases to a specific excise of USD 0.60, the average Retail Selling Price (RSP) would increase from USD 0.64 in the base scenario to USD 1.15 in Scenario 1, an increase of 80% (line 4 & 5). The increase in RSP is highest for the low

priced brands, with an increase of 151%, followed by the medium priced brands (82%) and high priced brands (37%). The premium brands show a decrease in RSP of 10% for the local brands and 2% for the imported brands, this is expected as there is a decrease in excise tax in these categories of 31% and 26% respectively (line 6). The imported premium brands from non-EAC countries also incur an import tariff of around USD 0.33, preventing a further decrease in RSP. However, the volumes of the premium brands are so small as to be negligible, making up around only 1% of total market share (see Appendix A).

Total consumption decreases by around 146 million, a decrease of 30%, given a -0.6 price elasticity of demand. The low priced segment has the highest consumption decline of 41% followed by the medium priced brand and high priced brands with declines of 30% and 17% respectively. Consumption increases by 1% in the imported premium brand and by 7% in the imported premium brands because of the declining RSP. Again, the percentage changes for consumption are identical to those of industry revenue, showing that low and medium priced brands contribute the most to the USD 2.4 million decline in industry revenue.

The quantum of excise tax per pack increases by 252% (line 3). As a result of this increase and the 30% decrease in cigarette consumption, average excise revenue is expected to increase by around 132% from a total excise revenue of around USD 4 million across to around USD 10 million (line 13 & 14).

Table 6.3.5: Comparing Selected Results from Scenario 1 to the Base Scenario: Rwanda

Rwanda Scenario 1									
Line		Imported Premium Brand (KE)	Imported Priced Brand (KE)	High Brand	Imported Medium Priced Brand (KE)	Imported Low Priced Brand (KE)	Imported High Priced Brand (BU)	Total or Average	
1	Base Excise tax (USD p.p.)	0.73	0.64		0.31	0.18	0.64	0.31	
2	Excise tax Scenario 1	0.60	0.60		0.60	0.60	0.60	0.60	
3	% change	-18	-6		97	228	-6	103	
4	Base Retail Price (USD p.p.)	2.02	1.76		0.84	0.50	1.76	0.87	
5	Retail Price Scenario 1	1.86	1.72		1.19	1.00	1.72	1.22	
6	% change	-8	-3		41	98	-3	44	
7	Base Consumption (M cigarettes)	3	18		208	45	3	277	
8	Consumption (M cigarettes) Scenario 1	3	18		170	30	3	224	
9	% change	5	2		-19	-33	2	-19	
10	Base Industry revenue (million USD)	0.15	0.75		4.24	0.55	0.12	5.81	
11	Industry revenue (million USD) Scenario 1	0.15	0.76		3.45	0.37	0.12	4.86	
12	% change	5	2		-19	-33	2	-16.4	
13	Base Excise revenue (million USD)	0.11	0.56		3.18	0.41	0.09	4.36	
14	Excise revenue (million USD) Scenario 1	0.09	0.54		5.09	0.91	0.08	6.71	
15	% change	-14	-5		60	120	-5	54	

*p.p. = per pack

The current weighted average binding excise tax in Rwanda is USD 0.31 per pack. If the excise tax increases to a specific excise of USD 0.60, the average Retail Selling Price (RSP) would increase from USD 0.87 to USD 1.22, an increase of 44% (line 4 & 5). The increase in RSP is again highest for the low priced brands, with an increase of 98%, followed by the medium priced brands (41%). The high priced brands and premium brands show a decrease in RSP of 3% and 8%, this is expected as there is a decrease in excise tax in these categories of 6% and 18% respectively (line 6).

With a price elasticity of demand of -0.6, total consumption decreases by around 53 million, a decrease of 19%. The low priced segment has the highest consumption decline of 33% followed by the medium priced segment (line 9). Consumption increases by 2% in the high priced segment and by 5% in the premium priced segment because of the declining RSP (line 9). The percentage changes for consumption are almost identical to those of industry revenue, showing that the consumption decline in low and medium price segments

contribute the most to the approximate USD 1 million decline in industry revenue (line 9 & 12).

The quantum of excise tax per pack increases by 103% (line 3). As a result of this increase and the 19% decrease in cigarette consumption, average excise revenue is expected to increase by around 54% from a total excise revenue of around USD 4 million across to around USD 7 million (line 13 & 14).

Table 6.3.6 Base Scenario and Scenario 1 Averages and Totals

Comparing Base Scenario averages with Scenario 1 Varieties											
Line		Kenya	%change	Tanzania	%change	Uganda	% change	Burundi	% change	Rwanda	%change
	Excise Tax (USD per pack)										
1	Base Scenario	0.32		0.22		0.22		0.18		0.31	
2	Scenario 1	0.60	89	0.60	190	0.60	175	0.60	252	0.60	103
3	Retail Price (USD per pack)										
4	Base Scenario	0.89		1.25		0.86		0.64		0.86	
5	Scenario 1	1.22	37	1.71	37	1.30	54	1.15	80	1.22	44
6	Consumption (million cigarettes)										
7	Base Scenario	5700		5520		927		489		277	
8	Scenario 1	4700	-18	4541	-18	719	-22	343	-30	224	-19
9	Industry Revenue (million USD)										
10	Base Scenario	126		229		23		9		6	
11	Scenario 1	106	-16	193	-16	18	-22	7	-27	5	-16
12	Government Excise revenue (million USD)										
13	Base Scenario	93		62		10		4		4	
14	Scenario 1	141	52	136	121	22	112	10	132	7	54
15	Total Consumption Expenditure (million USD)										
16	Base Scenario	256		345		40		16		12	
17	Scenario 1	288	13	389	13	47	19	20	26	14	14
18	Excise tax as a % of Retail Price										
19	Base Scenario	37		18		26		28		36	
20	Scenario 1	49	12	35	17	46	20	52	24	50	14

The table above gives an overview of the aggregates and totals in each EAC country so that they may be easily compared across the base Scenario and Scenario 1. The notable additions in this table include total consumption expenditure and excise tax as a percentage of Retail Selling Price (RSP). Total consumption expenditure increases by 13% in Kenya and Tanzania from USD 256 million to USD 288 million and from USD 345 million to USD 389 million respectively (line 16 & 17). In Rwanda the expenditure increase is 14% from USD 12 million to USD 14 million and in Uganda the increase is 19% from USD 40 million to USD 47

million. Consumption expenditure increases by the greatest percentage, 26%, in Burundi from USD 16 million to USD 20 million.

Line 19 and 20 show the differences in average excise tax as a percentage of RSP. This variable is used as a benchmarking tool internationally to encourage countries to increase their excise tax to 70% of RSP (WHO, 2010). In Kenya the average excise tax amount as a percentage of the retail price increases from 37% to 49% and in Tanzania it increases from 18% to 35%. In Uganda the excise tax amount as a percentage of the retail price increases from an average of 26% to 46% and in Burundi it increases from 28% to 52%. Lastly, in Rwanda the excise tax amount as a percentage of the retail price increases from 36% to 50%.

6.4 Testing Assumptions for Robustness

The table below presents each Scenario 1 variation and compares it to the base scenario, with the accompanying percentage changes. The Scenario 1 variations indicate the sensitivity of the price elasticity (Scenario 1A and 1B), industry response via NOT price changes (Scenario 1C and 1D) and excise tax variables (Scenario 1E and 1F). The adjustments made to scenario 1 are the following:

- A. An increase in the ϵ_p from -0.6 to -0.8
- B. A decrease in the ϵ_p from -0.6 to -0.4
- C. An increase in the NOT price by 20%
- D. A decrease in the NOT price by 20%
- E. An increase in the uniform specific tax from 0.60 to 0.80
- F. A decrease in the uniform specific tax from 0.60 to 0.40

Table 6.4.1: Comparing the Base Scenario with Scenario 1 Variations

Comparing Base Scenario averages with Scenario 1 Varieties											
Line		Kenya	%change	Tanzania	%change	Uganda	% change	Burundi	% change	Rwanda	%change
Excise Tax (USD per pack)											
1	Base Scenario	0.32		0.22		0.22		0.18		0.31	
2	Scenario 1	0.60	89	0.60	190	0.60	175	0.60	252	0.60	103
3	Scenario 1A	0.60	89	0.60	187	0.60	175	0.60	252	0.60	103
4	Scenario 1B	0.60	90	0.60	193	0.60	175	0.60	258	0.60	107
5	Scenario 1C	0.60	90	0.60	191	0.60	175	0.60	256	0.60	106
6	Scenario 1D	0.60	89	0.60	189	0.60	175	0.60	254	0.60	104
7	Scenario 1E	0.80	152	0.80	285	0.80	266	0.80	373	0.80	173
8	Scenario 1F	0.40	27	0.40	94	0.40	83	0.40	137	0.40	37
Retail Price (USD per pack)											
10	Base Scenario	0.89		1.25		0.86		0.64		0.86	
11	Scenario 1	1.22	37	1.71	37	1.30	54	1.15	80	1.22	44
12	Scenario 1A	1.23	38	1.72	38	1.31	53	1.16	84	1.22	56
13	Scenario 1B	1.22	37	1.71	37	1.31	54	1.14	82	1.21	57
14	Scenario 1C	1.33	49	1.91	53	1.43	67	1.24	97	1.31	70
15	Scenario 1D	1.12	26	1.51	22	1.19	40	1.06	69	1.11	42
16	Scenario 1E	1.46	64	1.95	57	1.55	82	1.39	120	1.45	85
17	Scenario 1F	0.99	11	1.47	18	1.07	26	0.91	45	0.98	27
Consumption (million cigarettes)											
19	Base Scenario	5700		5520		927		489		277	
20	Scenario 1	4700	-18	4541	-18	719	-22	343	-30	224	-19
21	Scenario 1A	4403	-23	4257	-23	660	-29	287	-41	195	-29
22	Scenario 1B	5011	-12	4845	-12	783	-16	376	-23	233	-16
23	Scenario 1C	4483	-21	4261	-23	684	-26	315	-36	203	-27
24	Scenario 1D	4952	-13	4883	-12	760	-18	346	-29	225	-19
25	Scenario 1E	4242	-26	4205	-24	653	-30	299	-39	194	-30
26	Scenario 1F	5341	-6	4972	-10	809	-13	372	-24	240	-13
Industry Revenue (million USD)											
1	Base Scenario	126		229		23		9		6	
2	Scenario 1	106	-16	193	-16	18	-22	7	-27	5	-16
4	Scenario 1A	100	-21	182	-21	17	-28	5	-38	4	-26
6	Scenario 1B	112	-11	204	-11	20	-15	7	-21	5	-14
8	Scenario 1C	121	-4	216	-6	21	-11	7	-20	5	-10
10	Scenario 1D	89	-29	166	-28	15	-34	5	-41	4	-33
12	Scenario 1E	96	-24	179	-22	17	-29	6	-37	4	-28
14	Scenario 1F	120	-5	210	-9	21	-12	7	-22	5	-1
Government Excise revenue (million USD)											
16	Base Scenario	93		62		10		4		4	
17	Scenario 1	141	52	136	121	22	112	10	132	7	54
19	Scenario 1A	132	43	128	107	20	95	9	95	6	36
21	Scenario 1B	150	62	145	136	23	131	11	156	7	61
23	Scenario 1C	134	45	128	107	21	102	9	114	6	41
25	Scenario 1D	149	60	146	138	23	124	10	135	7	56
27	Scenario 1E	170	83	168	173	26	157	12	171	8	79
29	Scenario 1F	107	15	99	61	16	59	7	69	5	11

An increase or decrease in the ϵp by 0.2 from the base of -0.6, shown in Scenarios 1A and 1B, does not have any effect on the excise tax and retail price variables. However, the ϵp variable has a significant effect on consumption levels, industry revenue and excise revenue.

Consumption volumes decrease relative to Scenario 1 with an increase in the ϵp and increase with a decrease in the ϵp , as expected. The results from Scenario 1A show that in Kenya and Tanzania consumption decreases by around 300 million cigarettes (-5%) with an increase in ϵp of 0.2 ($\epsilon p = -0.8$) relative to Scenario 1. Scenario 1B shows that cigarette consumption in Kenya and Tanzania increases by around the same amount with a decrease in the ϵp ($\epsilon p = -0.4$). In the same way, consumption levels increase and decrease in Uganda, Burundi and Rwanda by around 50 million (6%/-7%), 8 million (7%/-11%) and 6 million cigarettes (3%/-10%) respectively.

Industry revenues also decrease from Scenario 1 with an increase in the ϵp and increase with a decrease in the ϵp , as expected. In Kenya, Tanzania and Uganda industry revenue increase and decrease around Scenario 1 figures by around USD 6 million (+/-5%), USD 11 million (+/-5%) and USD 1.5 million (7%/-6%) respectively. Burundi and Rwanda, with smaller Scenario 1 bases, only deviate from Scenario 1 figures by around USD 1 million.

The effect that a change in ϵp has on the government excise revenue variable is the most significant of all variables, with decreases in government revenue following increases ϵp . In Kenya, Tanzania and Uganda government excise revenue increases (1B) and decreases (1A) around Scenario 1 results by around USD 10 million (10%/-9%), USD 8 million (15%/-14%) and USD 2 million (19%/-17%) respectively. Again, Burundi and Rwanda, with smaller bases, only deviate by around USD 1 million each.

When looking at the Net of Tax (NOT) variable, considered in Scenarios 1C and 1D one can see that a 20 percent increase (Scenario C) or decrease (Scenario D) in the NOT price with an increase in the excise tax does not have any effect on the excise tax variable. The NOT price, however, has a significant effect on the retail price, consumption volumes, industry revenue and government excise revenue.

The Retail Selling Price (RSP) of cigarettes increases with an increase in the NOT price and decreases with a decrease in the NOT price, as expected. For Scenario 1C and 1D the increases and decreases in RSP from Scenario 1 are around USD 0.10 for Kenya, Uganda, Burundi and Rwanda. In Tanzania, the deviations are double at around USD 0.20. Cigarette consumption decreases with an increase in the NOT price and increases with a decrease in

the NOT price, following the changes in the RSP. The results from Scenario 1C show that in Kenya and Tanzania consumption decreases by around 250 million cigarettes (-3% & -5% respectively) with a 20% increase in NOT price. Scenario 1D shows that cigarette consumption in Kenya and Tanzania increases by around the same amount (5% & 6% respectively) with a 20% decrease in the NOT price. In the same way, consumption levels fluctuate in Uganda by around 35 million cigarettes (-4%/4%). In Burundi and Rwanda the decrease in consumption of 23 million (-6%) and 21 million cigarettes (-8%) found in Scenario 1C is greater than the increase in consumption of 3 million (1%) and 1 million (0%) found in Scenario 1D.

Industry revenue increases when the NOT price increases, and decreases when the NOT price decreases. Scenario 1C shows that with an increase of 20% in the NOT price, the industry revenue in Kenya, Tanzania and Uganda increases from Scenario 1 figures by around USD 15 million (12%), USD 23 million (10%) and USD 3 million (11%) respectively, with Burundi and Rwanda not changing significantly. Scenario 1D shows that a 20% decrease in the NOT price causes industry revenue in Kenya, Tanzania and Uganda to decrease by USD 17 million (-13%), USD 27 million (-12%) and USD 3 million (-12%) compared to Scenario 1. Industry revenue in Burundi and Rwanda decreased by USD 2 million (-14%) and USD 1 million (-17%) respectively.

In Kenya and Tanzania government excise revenue decreases with a 20% increase in the NOT price. Scenario 1C shows these decreases to be around USD 7 million (-7%) in Kenya and USD 8 million (-14%) in Tanzania. In Uganda, Burundi and Rwanda excise revenue decreases by around USD 1 million but the percentage decreases are 10%, 18% and 13% respectively. A 20% decrease in the NOT price, shown in Scenario 1D, causes government excise revenue to rise by around USD 8 million (8%) in Kenya, USD 10 million (17%) in Tanzania and USD 1 million (12%) in Uganda. Excise revenue in Burundi and Rwanda increase by 3% and 2%, but the dollar value to the nearest million remains unchanged.

Scenario 1E and 1F consider an increase and decrease in the excise tax to USD 0.8 and USD 0.4 respectively. Changes in the excise tax have a significant effect on retail price, consumption, industry revenue and government revenue. The Retail Selling Price (RSP) of cigarettes increases with an increase in the excise tax and decreases with a decrease in the excise tax, as expected. For Scenario 1E and 1F the deviation in RSP from that of Scenario 1 is around USD 0.25 for all EAC countries.

Cigarette consumption decreases from Scenario 1 figures with an increase in the excise tax and increases with a decrease in the excise tax, following changes in the RSP. In Scenario 1E consumption in Kenya, Tanzania, Uganda, Burundi and Rwanda decline by around 500 million (-8%), 300 million (-6%), 70 million (-8%), 40 million (-9%) and 30 million cigarettes (-11%) respectively. Scenario 1F shows an increase in consumption relative to Scenario 1 when the excise tax decreases to USD 0.40. Following the same order as above these increases are approximately as follows, 600 million (12%), 400 million (8%), 90 million (9%), 30 million (6%) and 15 million cigarettes (6%).

Industry revenue decreases with an increase in the excise tax (Scenario 1E) and increases with a decrease in the excise tax (Scenario 1F). When comparing Scenario 1 to Scenario 1E industry revenue decreases by around USD 10 million (-8%) in Kenya and 14 million (-6%) in Tanzania. Uganda, Burundi and Rwanda all show decreases of USD 1 million but the percentage decreases are 7%, 10% and 12% respectively. However, with a decrease in the excise tax relative to Scenario 1 like that of Scenario 1F, industry revenue increases by around USD 14 million (11%) in Kenya, USD 17 million (7%) in Tanzania and USD 3 million (10%) in Uganda. Burundi and Rwanda do not show increases to the nearest million, but the industry revenue increases by 5% and 15% respectively.

In all EAC countries government excise revenue increases with an increase in the excise tax. Scenario 1E shows these increases to be around USD 29 million (31%) in Kenya, USD 32 million (52%) in Tanzania and USD 4 million (45%) in Uganda. Burundi and Rwanda experienced increases of around USD 2 million (39%) and USD 1 million (25%) respectively. A decrease in the specific tax of USD 0.20, found in Scenario 1F, causes government excise revenue to fall by around USD 34 million (-37%) in Kenya, USD 37 million (-60%) in Tanzania and USD 6 million (-53%) in Uganda. In Burundi and Rwanda this decrease is USD 3 million (-63%) and USD 2 million (43%) respectively.

6.5. Scenario 2: A mixed tax Structure of USD 0.6 or an ad valorem excise of 40% of RSP, whichever is higher.

The mixed tax structure of USD 0.60 or an ad valorem excise of 40% of RSP was chosen because the specific component ensures an increase in excise tax in all EAC countries and the ad valorem component ensures an increase in excise tax across all market segments, even the premium brands. The mixed tax structure also contributes to government revenue benefits. However, this system adds administrative complexity as explained in section 2.4. It is only in the smallest market segment of premium brands that this tax will serve to increase

the percentage changes of the excise tax variable from the base case (see appendix D: tables 2.1-2.5). The results of the Base Scenario are tabulated below and compared with the results of Scenario 1 and 2. The percentage changes are noted for the excise tax, retail price, consumption, industry revenue and government excise revenue variables.

Table 6.5.1: Comparing the Base Scenario with Scenario 1 and Scenario 2

Comparing Base Scenario averages with Scenario 1 Varieties												
Line		Kenya	%change	Tanzania	%change	Uganda	% change	Burundi	% change	Rwanda	%change	Total EAC
Excise Tax (USD per pack)												
1	Base Scenario	0.32		0.22		0.22		0.18		0.31		0.35
2	Scenario 1	0.60	89	0.60	190	0.60	175	0.60	252	0.60	103	0.6
3	Scenario 2	0.61	92	0.78	266	0.60	176	0.61	255	0.62	107	0.76
Retail Price (USD per pack)												
5	Base Scenario	0.89		1.25		0.86		0.64		0.86		1.29
6	Scenario 1	1.22	37	1.71	37	1.30	54	1.15	80	1.22	44	1.58
7	Scenario 2	1.24	38	1.92	54	1.31	54	1.16	81	1.24	46	1.77
Consumption (million cigarettes)												
9	Base Scenario	5700		5520		927		489		277		12913
10	Scenario 1	4700	-18	4541	-18	719	-22	343	-30	224	-19	10526
11	Scenario 2	4678	-18	4264	-23	718	-23	342	-30	222	-20	10223
Industry Revenue (million USD)												
13	Base Scenario	126		229		23		9		6		393.2
14	Scenario 1	106	-16	193	-16	18	-22	7	-27	5	-16	327.8
15	Scenario 2	105	-17	179	-22	18	-22	6	-28	5	-18	312.9
Government Excise revenue (million USD)												
17	Base Scenario	93		62		10		4		4		273.2
18	Scenario 1	141	52	136	121	22	112	10	132	7	54	315.8
19	Scenario 2	143	54	167	171	22	113	10	136	7	58	312.9
Excise tax as a % of Retail Price												
21	Base Scenario	37		18		26		28		36		28.6
22	Scenario 1	49	12	35	17	46	20	52	24	50	14	40.4
23	Scenario 2	50	13	41	23	46	20	53	25	51	15	63

The table above shows that the average excise tax in Scenario 2 is almost identical to that of Scenario 1, with Tanzania as an outlier. The average excise tax increases by a maximum of USD 0.02, with differences in percentage changes of less than 5% for all EAC countries except Tanzania (line 2 & 3). In Tanzania only the low priced brand is bound by the uniform specific tax, whereas all other brands are bound by the ad valorem component raising the average excise tax to USD 0.78, causing a 76 percentage point difference between the Scenario 1 and Scenario 2 percentage changes (see appendix D: table 2.2).

When comparing Scenario 1 and 2, the table shows that the Retail Selling Price (RSP), like the excise tax also increases by a maximum of USD 0.02, with differences in percentage changes of less than 5% for all EAC countries except Tanzania (line 6 & 7). The RSP in Tanzania, however, is around USD 0.20 greater in Scenario 2 than in Scenario 1.

When looking at consumption, the difference in percentage changes between Scenario 1 and 2 are negligible for all countries other than Tanzania. In Scenario 2 consumption declines from Scenario 1 figures by around 20 million cigarettes in Kenya, 270 million in Tanzania, 1 million in Uganda and Burundi, and 2 million in Rwanda (line 10 & 11).

Aggregate industry revenue and government excise revenue in Scenario 2 are almost identical to those of Scenario 1, except for Tanzania. The industry revenue declines by a maximum of USD 1 million, while excise revenue increases by a maximum of USD 2 million, except for Tanzania where it increases by USD 31 million (line 14 & 15 and line 18 & 19). For both industry revenue and excise revenue the difference in percentage changes from Scenario 1 to Scenario 2 is less than 5% for all EAC countries except Tanzania. In Tanzania the aggregate industry revenue for Scenario 2 is USD 179 million, causing a 6 percentage point difference between Scenario 1 and Scenario 2 (line 15).

The analysis of Scenario 2 reveals that a mixed excise tax structure does not raise overall government excise revenue by a significant amount, nor does it alter other aggregated variables significantly, except in Tanzania. There is no particular reason to expect that Tanzania should be an outlier in the EAC. This outcome could be due to data limitations discussed in section 5. The above results bring into question the viability of pursuing a mixed tax system for 'financial objectives' at the expense of greater administrative complexity. As an alternative option, policymakers should consider raising the uniform specific tax by a marginal amount, for example by USD 0.05 to achieve financial objectives similar to that of a mixed tax system without the administrative difficulties.

Section 7 Summary and Conclusion

This thesis has investigated the role of excise tax increases and harmonisation in the five members of the EAC. Excise tax increases on all tobacco products, serves to effectively address health and financial objectives of governments. These objectives are considered by including variables such as consumption volumes and government excise revenue. The effects of excise tax increases on the business sector have also been considered through the use of industry revenue.

Health Objectives

The base Scenario reveals that the total consumption of cigarettes across all EAC countries is around 12.9 billion cigarettes. In Scenario 1, with a simulated increase in the excise tax to a harmonised value of USD 0.60, consumption declines by around 2.3 billion (18%) to 10.5 billion cigarettes. In Scenario 2, with a mixed excise tax of USD 0.60 or 40% of the Retail Selling Price (RSP) a slightly higher decline of 21% to 10.2 billion cigarettes is revealed. These decreases in consumption are caused by decreases in smoking intensity and increases in smoking cessation which is in line with society's health objectives.

Financial Objectives

When considering government excise revenue across the EAC, Scenario 1 shows an increase of around 80% (USD 140 million), from USD 176 million to USD 316 million. Scenario 2 reveals an even greater increase in excise revenue compared to the base scenario of around 98% (USD 173 million) from USD 176 million to USD 349 million. These large increases in government revenue allow for increased government spending. The imposition of a uniform specific tax, as suggested by Scenario 1, provides the Treasury with more predictable revenue streams.

Industry Effects

Industry revenue across the EAC amounted to around USD 393 million in the base scenario. In Scenario 1 overall industry revenue declined by around USD 65 million (17%) to USD 328 million. With the mixed tax structure in Scenario 2, industry revenue decrease by around USD 80 million (20%) to USD 313 million. The percentage decline in industry revenue is similar to the that of consumption, indicating that the industry is likely to forfeit some revenue. However, the highly concentrated nature of the tobacco industry allows it to use its market power to prevent this loss in revenue by overshifting the tax. This strategy was noted

in Scenario 1C where there was assumed to be an increase in the NOT price by 20% with an increase in the excise tax. This scenario revealed a total industry revenue of around USD 370 million, USD 42 million more than Scenario 1. In Scenario 1C industry revenue still declines from the base scenario by USD 23 million, but this decline is less than that of Scenario 1. Scenario 1C also causes a reduction in government excise revenue from Scenario 1 by USD 18 million to USD 298 million. However, there are beneficial public health consequences of this industry strategy in that it reduces consumption relative to Scenario 1.

Drawbacks of the model

The results presented in this paper are outputs of a simulation model. The extent to which the parameter assumptions of the model are misrepresentative of reality, the results of the model will be proportionately flawed. The problem of missing and inaccurate data for the EAC has led to many imputed assumptions in the simulation model. These parameter assumptions include the Retail and Wholesale margins (RWM) and the price elasticity of demand (ϵ_p). Another drawback of the model is that it does not account for cross price elasticities. An increase in excise tax may have the effect of increasing the relative price of cigarettes in comparison to other tobacco products or non-tobacco products. This relative price increase can encourage substitution between tobacco products and brands as some become relatively more expensive. Ad valorem excise taxes often have the effect of increasing the difference in prices across brands, making health objectives more difficult to achieve. The model also does not account for illicit trade and random macroeconomic factors.

Overall Excise Tax policy Recommendations for the EAC

Chaloupka et al. (2011) recommends that countries relying on an ad valorem tax such as Burundi and Rwanda or countries that rely on a mixed structure should set a sizeable specific tax that applies to all brands with an ad valorem tax applied above this. This recommendation was explored in Scenario 2. Over time, they recommend that the ad valorem component be reduced, with greater increases in the specific tax so that the total tax increases as a share of RSP. Scenario 1 explores this recommendation where the ad valorem component has been reduced to zero and only the uniform specific tax remains. However, it is important to note that with a specific tax alone, there is an incentive for the industry and consumers to switch to cigarettes with a higher tobacco content such as king sized cigarettes as these become relatively cheaper. The uniform specific tax explored in Scenario 1 is also only equal to around 43% of the RSP across all EAC countries. Although

this is an increase of around 14 percentage points from the base scenario, where the excise tax is on average 29% of RSP, it is still below the WHO recommendations of 70% of RSP.

The difference in health, fiscal and industry effects between Scenario 1 and Scenario 2, given above, could be reduced by simply raising the uniform specific tax in Scenario 1 to achieve the same results without compromising additional administrative difficulties. The use of a uniform specific tax across all market segments and harmonised across all EAC countries is preferred because of the health message that all brands are equally harmful and the administrative ease of the tax structure. It must be noted, however, that the specific tax must be increased with inflation and income growth so that cigarettes do not become more affordable over time.

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Appendices: Appendix A: Data Figures and their sources

Table A1: Data Figures and Sources for Kenya

Variable	Value	Year	Source
Production	14,9 billion cigarettes	2009	ACS World Cigarettes Africa, Central Bank of Kenya
Consumption	5,7 billion cigarettes	2010	ACS World Cigarettes Africa, ERC Group
Import	102 million cigarettes, Switzerland 57m, UAE 25m, China and Poland 7m each	2009	ACS World Cigarettes Africa, ERC based on UN trade statistics
Exports to EAC countries	113.7 million cigarettes	2009	ACS World Cigarettes Africa, ERC Group
Exports to non-EAC countries	9.1 billion cigarettes	2009	Own calculations based on ACS World Cigarettes Africa
Market share for unfiltered cigarettes/soft cap<72mm/soft cap >72mm /hinge lid	15.8/66,9/12,3/5	2009/2009/2009/2004	ACS World Cigarettes Africa, ERC Group & Maxwell
Government revenue from Cigarettes	Just over KSH 6000	2008	Implementing Article 6: Case Study of Kenya
Import duty	35%	2010	ACS World Cigarettes Africa, ERC Group
Retail price	50Kshs (Rooster)/70 Kshs (Safari Kings)/90 Kshs (Sportsman)/140 Kshs (Dunhill)	1 March, 2010	ACS World Cigarettes Africa, BAT Kenya
Excise tax	1200Kshs or 35% of Retail Selling Price whichever is higher	2012	PWC East Africa Tax Report
VAT	16% on the value of supply including excise duty	2011	Deloitte East Africa Budget VAT Report, Section 9(2) of the Kenya VAT Act.

Table A2: Data Figures and Sources for Tanzania

Variable	Value	Year	Source
Production	5,68 billion cigarettes	2009	ACS World Cigarettes Africa, ERC estimates based on national trade statistics. Same figure found in the Tobacco Atlas 2012.
Consumption	5,45 billion cigarettes	2010	ACS World Cigarettes Africa, ERC based on trade sources
Import	70 million cigarettes, Portugal 32m, Kenya 28m, UAE 7m	2010	ACS World Cigarettes Africa, ERC based on trade sources
Market share for low/mid/high/premiumi	16.5/76/6.4/1.1	2002	ACS World Cigarettes Africa, ERC based on trade sources
Import duty	35%	2010	ACS World Cigarettes Africa, ERC Group
Retail price	TZS 1000/ TZS 2055 (Tobacco Atlas most popular brand 2012)/ TZS 4000 (Marlboro)	1 March, 2010	WHO MPOWER, 2010 & Tobacco Atlas, 2012
Excise tax	Without a filter containing 75% local content TZS6830 per mille/ With a filter containing 75% local content TZS16224 per mille/ Other cigarettes TZS 29264 per mille	2012	PWC East Africa Tax Report
VAT	18% on the amount of the consideration excluding the VAT, including excise duty	2012	PWC East Africa Tax Report, Deloitte East Africa Budget VAT Report. The Value Added Tax Act, Section 148, was enacted on 21 October 1997

Table A3: Data Figures and Sources for Uganda

Variable	Value	Year	Source
Production	No data Assumed 0	2012	Tobacco Atlas 2012
Consumption	972 million cigarettes	2009	ACS World Cigarettes Africa, ERC Group
Import	972m cigarettes, Kenya 914m cigarettes, Tanzania 13m	2009	ACS World Cigarettes Africa, ERC Group
Market share for soft cap>70% local constituents/soft cap <70% local constituents /hinge lid	17/76/ 6/1	-	Based on Tanzania's market share (source: ACS World Cigarettes Africa, ERC)
Import duty	N/A		
Retail price	UGX 1500 (Safari FF)/ UGX 2000 (Sportsman)/ UGX 2500 (Pall Mall) /UGX 4000 (Dunhill & Rex)	1 March, 2010	WHO MPOWER Report 2010 , Presentation During the Regional Training Workshop on Tobacco Taxes in Nairobi, Kenya Presented by Susan Nakagolo, Ministry of Finance, Planning and Economic Development Uganda
Government revenue from Tobacco Products (assume all tobacco products)	UGX 31,142 million	2009/2010	Presentation During the Regional Training Workshop on Tobacco Taxes in Nairobi, Kenya Presented by Susan Nakagolo, Ministry of Finance, Planning and Economic Development Uganda
Excise tax	soft cap>70% local constituents 22000 per mille/other soft cap25000 per mille /hinge lid 55000 per mille/others 160% ad valorem on ex-factory (not explicitly stated)	2012	PWC East Africa Tax Report
VAT	18% on the value of supply, including excise duty, if any, and any amount charged for advertising, financing, servicing, warranty, commission, transportation, etc.	2012	PWC East Africa Tax Report, Deloitte East Africa Budget VAT Report, Following the revision of the Laws of Uganda in 2002, the VAT Act was revised to the Value Added Tax Act, CAP 349.

Table B4: Data Figures and Sources for Rwanda

Variable	Value	Year	Source
Production	No data Assumed 0	2012	Tobacco Atlas 2012
Consumption	277 million cigarettes	2009	ACS World Cigarettes Africa, ERC based on Kenya exports and referred to UN COMTRADE
Import	276m Kenya, 1m Burundi	2009	ACS World Cigarettes Africa, ERC based on Kenya exports and cross referenced with UN COMTRADE
Market share for low/mid/high/premium	17/76/ 6/1	-	Based on Tanzania's market share (source: ACS World Cigarettes Africa, ERC)
Import duty	N/A	-	-
Retail price	RWF300/ RWF 500/ RWF 1050/ RWF 1200	2010	WHO MPOWER, 2010 & Tobacco Atlas, 2012
Excise tax	150% ad valorem on ex works price	-	Rwandan Revenue Authority
VAT	18% on the value of supply, including excise duty		PWC East Africa Tax Report, Deloitte East Africa Budget VAT Report,

Table A5: Data Figures and Sources for Burundi

Variable	Value	Year	Source
Production	470 million cigarettes	2012	Tobacco Atlas 2012
Consumption	489 million cigarettes	2012	ACS World Cigarettes Africa & Tobacco Atlas 2012
Import	19m Kenya	2011	ACS World Cigarettes Africa, ERC based on Kenya exports and cross referenced with UN COMTRADE
Market share for low/mid/high/premium	17/76/6/1	-	Based on Tanzania's market share (source: ACS World Cigarettes Africa, ERC)
Import duty	N/A	-	-
Retail price	BIF 500 (Kiyago)/BIF 800 (Supermatch Ordinaire)/ BIF 1300 (Tobacco Atlas 2012)/ BIF 4000 (Marlboro)	2010	WHO MPOWER, 2010 & Tobacco Atlas, 2012
Excise tax	100% ad valorem on ex works price	2010	(Peterson, 2010) and Rwanda imputation.
VAT	18% on the sales price, including taxes, fees and levies of any kind with the exception of the VAT		Taxrates cc, 2012, Deloitte East Africa Budget VAT Report,

Appendix B: Exchange Rates

Table B1: Exchange rates

Currency unit per USD			
Kenya	Shilling	KES	82.8
Burundi	Franc	BIF	1299
Tanzania	Shilling	TZS	1593
Uganda	Shilling	UGX	2305
Rwanda	Franc	RWF	595

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Appendix C: Tabulated Model Results for Scenario 1, 2 and 3

Scenario 1

Table 1.1 Scenario 1: Kenya

SIMULATION							
Line		Premium Brand	High Priced Brand	Medium Priced Brand	Low Priced Brand	Imported Premium (non-EAC)	Total or Average
Inputs							
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	50	50	50	50	50	
3	Specific excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	16%	16%	16%	16%	16%	
5	Perc. Change in NOT price	0	0	0	0	0	
6							
Outputs							
8	NOT price (KES per pack)	72	46	36	19	53	37
9	Excise tax (KES per pack)	50	50	50	50	50	50
10	VAT (KES per pack)	19	15	14	11	19	14
11	Retail price (KES per pack)	141	111	99	80	141	101
12							
13	NOT price (USD per pack)	0.87	0.56	0.43	0.23	0.64	0.45
14	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60
15	VAT (USD per pack)	0.23	0.19	0.17	0.13	0.23	0.17
16	Retail price (USD per pack)	1.70	1.34	1.20	0.96	1.70	1.22
17							
18	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	
19	Excise tax as % of retail price	35	45	50	62	35	49
20							
21	Cigarette consumption (million cigarettes)	279	606	3043	670	102	4700
22							
23	Excise revenue (million KES)	693	1505	7559	1665	253	11675
24	Industry revenue (million KES)	1000	1396	5454	640	270	8760
25	Total Consumption Expenditure (million KES)	1964	3365	15096	2674	716	23814
26							
27	Excise revenue (million USD)	8.37	18.18	91.30	20.11	3.05	141.00
28	Industry revenue (million USD)	12.08	16.86	65.87	7.73	3.26	105.80
29	Total Consumption Expenditure (million USD)	23.72	40.64	182.31	32.30	8.64	287.61
30							
Percentage changes							
32	Excise tax (KES per pack)	1.4	57.7	102.8	107.0	1.4	89.4
33	Retail price (KES per pack)	0.6	23.4	41.7	59.6	0.6	37.2
34	Cigarette consumption (million cigarettes)	-0.3	-11.8	-18.8	-24.2	-0.3	-17.5
35	Excise revenue (million KES)	1.0	39.0	64.7	56.9	1.0	52.2
36	Industry revenue (million KES)	-0.3	-11.8	-18.8	-24.2	-0.3	-15.9
37	Total Consumption expenditure (million KES)	0.2	8.8	15.1	20.9	0.2	12.9

Table 1.2 Scenario 1: Tanzania

		SIMULATION						
Line		Premium Brand	High Priced Brand	Medium Priced Brand	Low Priced Brand	Imported Premium Brand (non-EAC)	Imported Premium Brand (EAC)	Total or Average
Inputs								
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	956	956	956	956	956	956	
3	Specific excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	18%	18%	18%	18%	18%	18%	
5	Perc. Change in NOT price	0	0	0	0	0	0	
6								
7 Outputs								
8	NOT price (TZS per pack)	3002	2154	1353	683	1991	2687	1351
9	Excise tax (TZS per pack)	956	956	956	956	956	956	956
10	VAT (TZS per pack)	712	560	416	295	656	656	416
11	Retail price (TZS per pack)	4670	3670	2725	1934	4299	4299	2729
12								
13	NOT price (USD per pack)	1.88	1.35	0.85	0.43	1.25	1.69	0.85
14	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60	0.60
15	VAT (USD per pack)	0.45	0.35	0.26	0.19	0.41	0.41	0.26
16	Retail price (USD per pack)	2.93	2.30	1.71	1.21	2.70	2.70	1.71
17								
18	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	Specific	
19	Excise tax as % of retail price	20	26	35	49	22	22	35
20								
21	Cigarette consumption (million cigarettes)	55	309	3500	611	40	27	4541
22								
23	Excise revenue (million TZS)	2611	14775	167243	29190	1922	1281	217023
24	Industry revenue (million TZS)	8200	33299	236800	20867	4004	3603	306773
25	Total Consumption Expenditure (million TZS)	12757	56727	476771	59068	8646	5764	619733
26								
27	Excise revenue (million USD)	1.64	9.27	104.99	18.32	1.21	0.80	136.24
28	Industry revenue (million USD)	5.15	20.90	148.65	13.10	2.51	2.26	192.58
29	Total Consumption Expenditure (million USD)	8.01	35.61	299.29	37.08	5.43	3.62	389.04
30								
31 Percentage changes								
32	Excise tax (TZS per pack)	146.2	146.2	146.2	482.1	36.1	36.1	189.8
33	Retail price (TZS per pack)	16.7	22.3	32.6	93.4	7.5	7.5	37.4
34	Cigarette consumption (million cigarettes)	-8.9	-11.4	-15.5	-32.1	-4.2	-4.2	-17.7
35	Excise revenue (million TZS)	124.4	118.2	108.0	295.4	30.3	30.3	121.1
36	Industry revenue (million TZS)	-8.9	-11.4	-15.5	-32.1	-4.2	-4.2	-16.1
37	Total Consumption expenditure (million TZS)	6.4	8.4	12.0	31.4	2.9	2.9	12.9

Table 1.3 Scenario 1: Uganda

		SIMULATION					
Line		Imported Premium brand (KE)	Imported High priced brand (KE)	Imported Medium Priced Brand (KE)	Imported Low priced brand (KE)	Imported high priced brand (TZ)	Total or Average
Inputs							
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	1383	1383	1383	1383	1383	
3	Specific excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	18%	18%	18%	18%	0	
5	Perc. Change in NOT price	0	0	0	0		
6							
Outputs							
8	NOT price (UGS per pack)	2290	1619	1195	771	1619	1174
9	Excise tax (UGS per pack)	1383	1383	1383	1383	1383	1383
10	VAT (UGS per pack)	661	540	464	388	540	460
11	Retail price (UGS per pack)	4334	3542	3042	2542	3542	3017
12							
13	NOT price (USD per pack)	0.99	0.70	0.52	0.33	0.70	0.51
14	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60
15	VAT (USD per pack)	0.29	0.23	0.20	0.17	0.23	0.20
16	Retail price (USD per pack)	1.88	1.54	1.32	1.10	1.54	1.31
17							
18	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	
19	Excise tax as % of retail price	32	39	45	54	39	46
20							
21	Cigarette consumption (million cigarettes)	9	45	541	114	11	719
22							
23	Excise revenue (million UGS)	602	3081	37437	7866	730	49718
24	Industry revenue (million UGS)	997	3606	32346	4386	855	42191
25	Total Consumption Expenditure (million UGS)	1888	7891	82345	14458	1871	108452
26							
27	Excise revenue (million USD)	0.26	1.34	16.24	3.41	0.32	21.57
28	Industry revenue (million USD)	0.43	1.56	14.03	1.90	0.37	18.30
29	Total Consumption Expenditure (million USD)	0.82	3.42	35.72	6.27	0.81	47.05
30							
Percentage changes							
32	Excise tax (UGS per pack)	25.7	176.6	176.6	176.6	176.6	174.8
33	Retail price (UGS per pack)	8.3	41.7	52.1	69.5	41.7	53.5
34	Cigarette consumption (million cigarettes)	-4.7	-18.8	-22.1	-26.8	-18.8	-22.4
35	Excise revenue (million UGS)	19.8	124.7	115.6	102.5	124.7	112.0
36	Industry revenue (million UGS)	-4.7	-18.8	-22.1	-26.8	-18.8	-21.9
37	Total Consumption expenditure (million UGS)	3.3	15.1	18.5	24.1	15.1	18.6

Table 1.4 Scenario 1: Burundi

		SIMULATION						
Line		Premium brand	High priced brand	Medium Priced Brand	Low priced brand	Imported Premium brand (non-EAC)	Imported Premium brand (EAC)	Total or Average
Inputs								
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific Excise tax in local currency	779	779	779	779	779	779	
3	Specific excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	18%	18%	18%	18%	18%	18%	
5	Perc. Change in NOT price	0	0	0	0	0	0	
6	Retail & Wholesale margin (% on EX-WORKS PRICE)	100	100	100	100	100	100	
7								
Outputs								
9	NOT price (BIF per pack)	2260	734	452	282	2119	734	492
10	Excise tax (BIF per pack)	779	779	779	779	779	779	779
11	VAT (BIF per pack)	547	272	222	191	598	272	229
12	Retail price (BIF per pack)	3586	1786	1453	1253	3920	1786	1500
13								
14	NOT price (USD per pack)	1.74	0.57	0.35	0.22	1.63	0.57	0.38
15	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60	0.60
16	VAT (USD per pack)	0.42	0.21	0.17	0.15	0.46	0.21	0.18
17	Retail price (USD per pack)	2.76	1.38	1.12	0.96	3.02	1.38	1.15
18								
19	Binding excise tax (specific or ad valorem)	ad valorem	ad valorem	ad valorem	ad valorem	ad valorem	ad valorem	
20	Excise tax as % of retail price	22	44	54	62	20	44	52
21								
22	Cigarette consumption (million cigarettes)	6	25	251	46	0	16	343
23								
24	Excise revenue (million BIF)	215	970	9796	1784	0	612	13377
25	Industry revenue (million BIF)	624	914	5681	646	1	577	8442
26	Total Consumption Expenditure (million BIF)	990	2223	18262	2867	2	1403	25747
27								
28	Excise revenue (million USD)	0.17	0.75	7.54	1.37	0.00	0.47	10.30
29	Industry revenue (million USD)	0.48	0.70	4.37	0.50	0.00	0.44	6.50
30	Total Consumption Expenditure (million USD)	0.76	1.71	14.06	2.21	0.00	1.08	19.82
31								
Percentage changes								
33	Excise tax (BIF per pack)	-31.0	112.2	244.9	451.8	-26.4	112.2	252.3
34	Retail price (BIF per pack)	-10.3	37.4	81.6	150.6	-2.0	37.4	79.7
35	Cigarette consumption (million cigarettes)	6.8	-17.3	-29.6	-41.0	1.2	-17.3	-29.8
36	Excise revenue (million BIF)	-26.4	75.6	142.7	225.7	-25.5	75.6	131.5
37	Industry revenue (million BIF)	6.8	-17.3	-29.6	-41.0	1.2	-17.3	-26.9
38	Total Consumption expenditure (million BIF)	-4.3	13.7	27.8	47.9	-0.8	13.7	25.9

Table 1.5 Scenario 1: Rwanda

		SIMULATION					
Line		Imported Premium brand (KE)	Imported High priced brand (KE)	Imported Medium Priced Brand (KE)	Imported Low priced brand (KE)	Imported High priced brand (BU)	Total or Average
Inputs							
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Excise tax per pack local currency	357	357	357	357	357	
3	Excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	18%	18%	18%	18%	18%	
5	Perc. Change in NOT price	0	0	0	0	0	
6	Retail & Wholesale margin (% on ex-works price)	100	100	100	100	100	
7							
Outputs							
9	NOT price (RWF per pack)	581	508	242	145	508	258
10	Excise tax (RWF per pack)	357	357	357	357	357	357
11	VAT (RWF per pack)	169	156	108	90	156	111
12	Retail price (RWF per pack)	1107	1021	707	593	1021	726
13							
14	NOT price (USD per pack)	0.98	0.85	0.41	0.24	0.85	0.43
15	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60
16	VAT (USD per pack)	0.28	0.26	0.18	0.15	0.26	0.19
17	Retail price (USD per pack)	1.86	1.72	1.19	1.00	1.72	1.22
18							
19	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	
20	Excise tax as % of retail price	32	35	50	60	35	50
21							
22	Cigarette consumption (million packs)	3	18	170	30	3	224
23							
24	Excise revenue (million RWF)	57	319	3026	542	50	3994
25	Industry revenue (million RWF)	92	454	2052	221	72	2890
26	Total Consumption Expenditure (million RWF)	175	911	5993	900	144	8123
27							
28	Excise revenue (million USD)	0.09	0.54	5.09	0.91	0.08	6.71
29	Industry revenue (million USD)	0.15	0.76	3.45	0.37	0.12	4.86
30	Total Consumption Expenditure (million USD)	0.29	1.53	10.07	1.51	0.24	13.65
31							
Percentage changes							
33	Excise tax (RWF per pack)	-18.1	-6.4	96.6	227.6	-6.4	103.2
34	Retail price (RWF per pack)	-7.8	-2.7	41.4	97.6	-2.7	44.2
35	Cigarette consumption (million cigarettes)	5.0	1.7	-18.7	-32.9	1.7	-19.2
36	Excise revenue (million RWF)	-14.0	-4.8	59.9	119.9	-4.8	54.1
37	Industry revenue (million RWF)	5.0	1.7	-18.7	-32.9	1.7	-16.4
38	Total Consumption expenditure (million RWF)	-3.2	-1.1	15.0	32.6	-1.1	13.8

Table 1.6 Scenario 1 Robustness of Price Elasticity ($\epsilon_p = -0.8$): Kenya

SIMULATION							
Line		Premium Brand	High Priced Brand	Medium Priced Brand	Low Priced Brand	Imported Premium (non-EAC)	Total or Average
Inputs							
1	Price elasticity	-0.8	-0.8	-0.8	-0.8	-0.8	
2	Specific excise tax per pack local currency	50	50	50	50	50	
3	Specific excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	16%	16%	16%	16%	16%	
5	Perc. Change in NOT price	0	0	0	0	0	
6							
7	Outputs						
8	NOT price (KES per pack)	72	46	36	19	53	38
9	Excise tax (KES per pack)	50	50	50	50	50	50
10	VAT (KES per pack)	19	15	14	11	19	14
11	Retail price (KES per pack)	141	111	99	80	141	102
12							
13	NOT price (USD per pack)	0.87	0.56	0.43	0.23	0.64	0.45
14	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60
15	VAT (USD per pack)	0.23	0.19	0.17	0.13	0.23	0.17
16	Retail price (USD per pack)	1.70	1.34	1.20	0.96	1.70	1.23
17							
18	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	
19	Excise tax as % of retail price	35	45	50	62	35	49
20							
21	Cigarette consumption (million cigarettes)	279	581	2837	610	102	4408
22							
23	Excise revenue (million KES)	692	1443	7048	1515	252	10950
24	Industry revenue (million KES)	999	1338	5085	583	270	8275
25	Total Consumption Expenditure (million KES)	1962	3226	14074	2434	715	22410
26							
27	Excise revenue (million USD)	8.36	17.42	85.12	18.30	3.05	132.25
28	Industry revenue (million USD)	12.06	16.16	61.41	7.04	3.26	99.93
29	Total Consumption Expenditure (million USD)	23.69	38.96	169.97	29.39	8.63	270.65
30							
31	Percentage changes						
32	Excise tax (KES per pack)	1.4	57.7	102.8	107.0	1.4	88.7
33	Retail price (KES per pack)	0.6	23.4	41.7	59.6	0.6	37.5
34	Cigarette consumption (million cigarettes)	-0.4	-15.5	-24.3	-31.0	-0.4	-22.7
35	Excise Revenue (million KES)	0.9	33.3	53.6	42.8	0.9	42.8
36	Industry revenue (million KES)	-0.4	-15.5	-24.3	-31.0	-0.4	-20.6
37	Total Consumption expenditure (million KES)	0.1	4.3	7.3	10.1	0.1	6.3

Table 1.7 Scenario 1 Robustness of Price Elasticity ($\epsilon_p = -0.8$): Tanzania

SIMULATION								
Line		Premium Brand	High Priced Brand	Medium Priced Brand	Low Priced Brand	Imported Premium Brand (non-EAC)	Imported Premium Brand (EAC)	Total or Average
Inputs								
1	Price elasticity	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	
2	Specific excise tax per pack local currency	956	956	956	956	956	956	
3	Specific excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	18%	18%	18%	18%	18%	18%	
5	Perc. Change in NOT price	0	0	0	0		0	
6								
Outputs								
8	NOT price (TZS per pack)	3002	2154	1353	683	1991	2687	1360
9	Excise tax (TZS per pack)	956	956	956	956	956	956	956
10	VAT (TZS per pack)	712	560	416	295	656	656	418
11	Retail price (TZS per pack)	4670	3670	2725	1934	4299	4299	2740
12								
13	NOT price (USD per pack)	1.88	1.35	0.85	0.43	1.25	1.69	0.85
14	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60	0.60
15	VAT (USD per pack)	0.45	0.35	0.26	0.19	0.41	0.41	0.26
16	Retail price (USD per pack)	2.93	2.30	1.71	1.21	2.70	2.70	1.72
17								
18	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	Specific	
19	Excise tax as % of retail price	20	26	35	49	22	22	35
20								
21	Cigarette consumption (million cigarettes)	53	297	3307	534	40	26	4257
22								
23	Excise revenue (million TZS)	2531	14190	158040	25528	1895	1263	203448
24	Industry revenue (million TZS)	7950	31981	223770	18249	3946	3552	289448
25	Total Consumption Expenditure (million TZS)	12368	54482	450536	51657	8522	5681	583247
26								
27	Excise revenue (million USD)	1.59	8.91	99.21	16.03	1.19	0.79	127.71
28	Industry revenue (million USD)	4.99	20.08	140.47	11.46	2.48	2.23	181.70
29	Total Consumption Expenditure (million USD)	7.76	34.20	282.82	32.43	5.35	3.57	366.13
30								
31	Percentage changes							
32	Excise tax (TZS per pack)	146.2	146.2	146.2	482.1	36.1	36.1	186.6
33	Retail price (TZS per pack)	16.7	22.3	32.6	93.4	7.5	7.5	37.9
34	Cigarette consumption (million cigarettes)	-11.6	-14.9	-20.2	-40.6	-5.6	-5.6	-22.9
35	Excise Revenue (million TZS)	117.6	109.6	96.6	245.8	28.5	28.5	107.2
36	Industry revenue (million TZS)	-11.6	-14.9	-20.2	-40.6	-5.6	-5.6	-20.8
37	Total Consumption expenditure (million TZS)	3.2	4.1	5.9	14.9	1.5	1.5	6.3

Table 1.8 Scenario 1 Robustness of Price Elasticity ($\epsilon_p = -0.8$): Uganda

		SIMULATION					
Line		Imported Premium Brand (KE)	Imported High Priced Brand (KE)	Imported Medium Priced Brand (KE)	Imported Low priced brand (KE)	Imported High priced brand (TZ)	Total or Average
Inputs							
1	Price elasticity	-0.8	-0.8	-0.8	-0.8	-0.8	
2	Specific excise tax per pack local currency	1383	1383	1383	1383	1383	
3	Specific excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	18%	18%	18%	18%	18%	
5	Perc. Change in NOT price	0	0	0	0	0	
6							
7 Outputs							
8	NOT price (UGS per pack)	2290	1619	1195	771	1619	1176
9	Excise tax (UGS per pack)	1383	1383	1383	1383	1383	1383
10	VAT (UGS per pack)	661	540	464	388	540	461
11	Retail price (UGS per pack)	4334	3542	3042	2542	3542	3020
12							
13	NOT price (USD per pack)	0.99	0.70	0.52	0.33	0.70	0.51
14	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60
15	VAT (USD per pack)	0.29	0.23	0.20	0.17	0.23	0.20
16	Retail price (USD per pack)	1.88	1.54	1.32	1.10	1.54	1.31
17							
18	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	
19	Excise tax as % of retail price	32	39	45	54	39	46
20							
21	Cigarette consumption (million cigarettes)	9	42	498	102	10	660
22							
23	Excise revenue (million UGS)	593	2873	34406	7071	681	45623
24	Industry revenue (million UGS)	981	3362	29727	3943	797	38810
25	Total Consumption Expenditure (million UGS)	1858	7357	75677	12996	1744	99632
26							
27	Excise revenue (million USD)	0.26	1.25	14.93	3.07	0.30	19.79
28	Industry revenue (million USD)	0.43	1.46	12.90	1.71	0.35	16.84
29	Total Consumption Expenditure (million USD)	0.81	3.19	32.83	5.64	0.76	43.22
30							
31 Percentage changes							
32	Excise tax (UGS per pack)	25.7	176.6	176.6	176.6	176.6	174.6
33	Retail price (UGS per pack)	8.3	41.7	52.1	69.5	41.7	53.4
34	Cigarette consumption (million cigarettes)	-6.2	-24.2	-28.4	-34.2	-24.2	-28.8
35	Excise Revenue (million UGS)	17.9	109.5	98.1	82.0	109.5	94.6
36	Industry revenue (million UGS)	-6.2	-24.2	-28.4	-34.2	-24.2	-28.2
37	Total Consumption expenditure (million UGS)	1.6	7.3	8.9	11.5	7.3	9.0

Table 1.9 Scenario 1 Robustness of Price Elasticity ($\epsilon_p = -0.8$): Burundi

		SIMULATION						
Line		Premium Brand	High Priced Brand	Medium Priced Brand	Low Priced Brand	Imported Premium Brand (non-EAC)	Imported Premium Brand (EAC)	Total or Average
Inputs								
1	Price elasticity	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	
2	Specific excise tax per pack local currency	779	779	779	779	779	779	
3	Specific excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	18%	18%	18%	18%	18%	18%	
5	Perc. Change in NOT price	0	0	0	0	0	0	
6	Retail & Wholesale margin (% on ex-works price)	100	100	100	100	100	100	
7								
Outputs								
9	NOT price (BIF per pack)	2260	734	452	282	2119	734	492
10	Excise tax (BIF per pack)	779	779	779	779	779	779	779
11	VAT (BIF per pack)	628	299	238	201	674	299	247
12	Retail price (BIF per pack)	4120	1960	1560	1320	4420	1960	1525
13								
14	NOT price (USD per pack)	1.74	0.57	0.35	0.22	1.63	0.57	0.38
15	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60	0.60
16	VAT (USD per pack)	0.42	0.21	0.17	0.15	0.46	0.21	0.18
17	Retail price (USD per pack)	2.76	1.38	1.12	0.96	3.02	1.38	1.16
18								
19	Binding excise tax (specific or ad valorem)	ad valorem	ad valorem	ad valorem	ad valorem	ad valorem	ad valorem	
20	Excise tax as % of retail price	19	40	50	59	18	40	51
21								
22	Cigarette consumption (million cigarettes)	5	20	211	38	0	14	287
23								
24	Excise revenue (million BIF)	179	793	8218	1464	0	534	11188
25	Industry revenue (million BIF)	519	747	4766	531	1	503	7066
26	Total Consumption Expenditure (million BIF)	946	1993	16446	2479	2	1342	23208
27								
28	Excise revenue (million USD)	0.14	0.61	6.33	1.13	0.00	0.41	8.61
29	Industry revenue (million USD)	0.40	0.58	3.67	0.41	0.00	0.39	5.44
30	Total Consumption Expenditure (million USD)	0.73	1.53	12.66	1.91	0.00	1.03	17.87
31								
Percentage changes								
33	Excise tax (BIF per pack)	-31.0	112.2	244.9	451.8	-26.4	112.2	251.8
34	Retail price (BIF per pack)	3.0	50.7	95.0	163.9	10.5	50.7	83.7
35	Cigarette consumption (million cigarettes)	-2.3	-27.9	-41.0	-53.0	-7.7	-27.9	-41.3
36	Excise revenue (million BIF)	-32.6	53.1	103.6	159.5	-32.1	53.1	95.2
37	Industry revenue (million BIF)	-2.3	-27.9	-41.0	-53.0	-7.7	-27.9	-38.4
38	Total Consumption expenditure (million BIF)	0.6	8.7	15.1	24.1	2.0	8.7	14.4

Table 1.10 Scenario 1 Robustness of Price Elasticity ($\epsilon_p = -0.8$): Rwanda

SIMULATION							
Line		Imported Premium Brand (KE)	Imported High Priced Brand (KE)	Imported Medium Priced Brand (KE)	Imported Low Priced Brand (KE)	Imported High Priced Brand (BU)	Total or Average
Inputs							
1	Price elasticity	-0.8	-0.8	-0.8	-0.8	-0.8	
2	Excise tax per pack local currency	357	357	357	357	357	
3	Excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	18%	18%	18%	18%	18%	
5	Perc. Change in NOT price	0	0	0	0	0	
6	Retail & Wholesale margin (% on ex-works price)	100	100	100	100	100	
7							
8	Outputs						
9	NOT price (RWF per pack)	581	508	242	145	508	258
10	Excise tax (RWF per pack)	357	357	357	357	357	357
11	VAT (RWF per pack)	190	174	117	96	174	120
12	Retail price (RWF per pack)	1244	1141	764	627	1141	787
13							
14	NOT price (USD per pack)	0.98	0.85	0.41	0.24	0.85	0.43
15	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60
16	VAT (USD per pack)	0.28	0.26	0.18	0.15	0.26	0.19
17	Retail price (USD per pack)	1.86	1.72	1.19	1.00	1.72	1.22
18							
19	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	
20	Excise tax as % of retail price	29	31	47	57	31	46
21							
22	Cigarette consumption (million packs)	3	15	149	26	3	195
23							
24	Excise revenue (million RWF)	48	275	2655	466	46	3489
25	Industry revenue (million RWF)	77	391	1800	190	66	2525
26	Total Consumption Expenditure (million RWF)	166	878	5682	818	148	7692
27							
28	Excise revenue (million USD)	0.08	0.46	4.46	0.78	0.08	5.86
29	Industry revenue (million USD)	0.13	0.66	3.03	0.32	0.11	4.24
30	Total Consumption Expenditure (million USD)	0.28	1.48	9.55	1.38	0.25	12.93
31							
32	Percentage changes						
33	Excise tax (RWF per pack)	-18.1	-6.4	96.6	227.6	-6.4	103.0
34	Retail price (RWF per pack)	3.7	8.7	52.8	109.0	8.7	55.6
35	Cigarette consumption (million cigarettes)	-2.8	-6.4	-28.6	-44.0	-6.4	-29.4
36	Excise revenue (million RWF)	-20.4	-12.4	40.3	83.4	-12.4	35.6
37	Industry revenue (million RWF)	-2.8	-6.4	-28.6	-44.0	-6.4	-26.4
38	Total Consumption expenditure (million RWF)	0.7	1.7	9.1	17.0	1.7	8.6

Table 1.11 Scenario 1 Robustness of Price Elasticity ($\epsilon_p = -0.4$): Kenya

SIMULATION							
Line		Premium brand	High priced brand	Medium Priced Brand	low priced brand	Imported Premium	Total or Average
	Inputs						
1	Price elasticity	-0.4	-0.4	-0.4	-0.4	-0.4	
2	Specific excise tax per pack local currency	50	50	50	50	50	
3	Specific excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	16%	16%	16%	16%	16%	
5	Perc. Change in NOT price		0	0	0	0	
6							
7	Outputs						
8	NOT price (KES per pack)	72	46	36	19	53	37
9	Excise tax (KES per pack)	50	50	50	50	50	50
10	VAT (KES per pack)	19	15	14	11	19	14
11	Retail price (KES per pack)	141	111	99	80	141	101
12							
13	NOT price (USD per pack)	0.87	0.56	0.43	0.23	0.64	0.45
14	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60
15	VAT (USD per pack)	0.23	0.19	0.17	0.13	0.23	0.17
16	Retail price (USD per pack)	1.70	1.34	1.20	0.96	1.70	1.22
17							
18	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	
19	Excise tax as % of retail price	35	45	50	62	35	49
20							
21	Cigarette consumption (million cigarettes)	279	632	3262	736	102	5011
22							
23	Excise revenue (million KES)	694	1570	8104	1828	253	12448
24	Industry revenue (million KES)	1001	1456	5847	703	270	9277
25	Total Consumption Expenditure (million KES)	1966	3510	16183	2935	716	25310
26							
27	Excise revenue (million USD)	8.38	18.96	97.87	22.07	3.05	150.33
28	Industry revenue (million USD)	12.09	17.59	70.62	8.49	3.26	112.04
29	Total Consumption Expenditure (million USD)	23.74	42.39	195.45	35.45	8.65	305.68
30							
31	Percentage changes						
32	Excise tax (KES per pack)	1.4	57.7	102.8	107.0	1.4	90.0
33	Retail price (KES per pack)	0.6	23.4	41.7	59.6	0.6	36.9
34	Cigarette consumption (million cigarettes)	-0.2	-8.1	-12.9	-16.8	-0.2	-12.1
35	Excise revenue (million KES)	1.2	45.0	76.6	72.2	1.2	62.3
36	Industry revenue (million KES)	-0.2	-8.1	-12.9	-16.8	-0.2	-10.9
37	Total Consumption expenditure (million KES)	0.3	13.5	23.4	32.7	0.3	20.0

Table 1.12 Scenario 1 Robustness of Price Elasticity ($\epsilon_p = -0.4$): Tanzania

SIMULATION								
Line		Premium brand	High priced brand	Medium Priced Brand	low priced brand	Imported Premium from others	Imported Premium in EAC	Total or Average
Inputs								
1	Price elasticity	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	
2	Specific excise tax per pack local currency	956	956	956	956	956	956	
3	Specific excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	18%	18%	18%	18%	18%	18%	
5	Perc. Change in NOT price	0	0	0	0		0	
6								
Outputs								
8	NOT price (TZS per pack)	3002	2154	1353	683	1991	2687	1342
9	Excise tax (TZS per pack)	956	956	956	956	956	956	956
10	VAT (TZS per pack)	712	560	416	295	656	656	415
11	Retail price (TZS per pack)	4670	3670	2725	1934	4299	4299	2719
12								
13	NOT price (USD per pack)	1.88	1.35	0.85	0.43	1.25	1.69	0.84
14	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60	0.60
15	VAT (USD per pack)	0.45	0.35	0.26	0.19	0.41	0.41	0.26
16	Retail price (USD per pack)	2.93	2.30	1.71	1.21	2.70	2.70	1.71
17								
18	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	Specific	
19	Excise tax as % of retail price	20	26	35	49	22	22	35
20								
21	Cigarette consumption (million cigarettes)	56	322	3702	696	41	27	4845
22								
23	Excise revenue (million TZS)	2693	15382	176934	33266	1950	1300	231526
24	Industry revenue (million TZS)	8458	34667	250522	23781	4062	3656	325146
25	Total Consumption Expenditure (million TZS)	13158	59058	504399	67315	8771	5848	658549
26								
27	Excise revenue (million USD)	1.69	9.66	111.07	20.88	1.22	0.82	145.34
28	Industry revenue (million USD)	5.31	21.76	157.26	14.93	2.55	2.29	204.11
29	Total Consumption Expenditure (million USD)	8.26	37.07	316.63	42.26	5.51	3.67	413.40
30								
Percentage changes								
32	Excise tax (TZS per pack)	146.2	146.2	146.2	482.1	36.1	36.1	192.9
33	Retail price (TZS per pack)	16.7	22.3	32.6	93.4	7.5	7.5	36.9
34	Cigarette consumption (million cigarettes)	-6.0	-7.7	-10.6	-22.6	-2.8	-2.8	-12.2
35	Excise revenue (million TZS)	131.5	127.2	120.1	350.6	32.2	32.2	135.8
36	Industry revenue (million TZS)	-6.0	-7.7	-10.6	-22.6	-2.8	-2.8	-11.0
37	Total Consumption expenditure (million TZS)	9.7	12.9	18.5	49.7	4.4	4.4	20.0

Table 1.13 Scenario 1 Robustness of Price Elasticity ($\epsilon_p = -0.4$): Uganda

SIMULATION							
Line		Imported Premium brand (KE)	Imported High priced brand (KE)	Imported Medium Priced Brand (KE)	Imported low priced brand (KE)	Imported High priced brand (TZ)	Total or Average
Inputs							
1	Price elasticity	-0.4	-0.4	-0.4	-0.4	-0.4	
2	Specific excise tax per pack local currency	1383	1383	1383	1383	1383	
3	Specific excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	18%	18%	18%	18%	18%	
5	Perc. Change in NOT price		0	0	0	0	
6							
7 Outputs							
8	NOT price (UGS per pack)	2290	1619	1195	771	1619	1171
9	Excise tax (UGS per pack)	1383	1383	1383	1383	1383	1383
10	VAT (UGS per pack)	661	540	464	388	540	460
11	Retail price (UGS per pack)	4334	3542	3042	2542	3542	3014
12							
13	NOT price (USD per pack)	0.99	0.70	0.52	0.33	0.70	0.51
14	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60
15	VAT (USD per pack)	0.29	0.23	0.20	0.17	0.23	0.20
16	Retail price (USD p.p)	1.88	1.54	1.32	1.10	1.54	1.31
17							
18	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	
19	Excise tax as % of retail price	32	39	45	54	39	46
20							
21	Cigarette consumption (M cigarettes)	9	48	589	126	11	783
22							
23	Excise revenue (M UGS)	612	3303	40700	8736	783	54134
24	Industry revenue (M UGS)	1013	3866	35165	4871	916	45832
25	Total Consumption Expenditure (M UGS)	1918	8459	89522	16057	2005	117960
26							
27	Excise revenue (M USD)	0.27	1.43	17.66	3.79	0.34	23.49
28	Industry revenue (M USD)	0.44	1.68	15.26	2.11	0.40	19.88
29	Total Consumption Expenditure (M USD)	0.83	3.67	38.84	6.97	0.87	51.18
30							
31 Percentage changes							
32	Excise tax (UGS p.p)	25.7	176.6	176.6	176.6	176.6	174.9
33	Retail price (UGS p.p)	8.3	41.7	52.1	69.5	41.7	53.6
34	Cigarette consumption (M cigarettes)	-3.2	-12.9	-15.3	-18.7	-12.9	-15.5
35	Excise revenue (M UGS)	21.8	140.9	134.4	124.9	140.9	130.9
36	Industry revenue (M UGS)	-3.2	-12.9	-15.3	-18.7	-12.9	-15.2
37	Total Consumption expenditure (M UGS)	4.9	23.4	28.9	37.8	23.4	29.0

Table 1.14 Scenario 1 Robustness of Price Elasticity ($\epsilon_p = -0.4$): Burundi

SIMULATION								
Line		Premium brand	High priced brand	Medium Priced Brand	low priced brand	Imported Premium from others	Imported Premium in EAC	Total or Average
Inputs								
1	Price elasticity	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	
2	Specific excise tax per pack local currency	779	779	779	779	779	779	
3	Specific excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	18%	18%	18%	18%	18%	18%	
5	Perc. Change in NOT price	0	0	0	0	0	0	
6	Retail & Wholesale margin (% on EW)	100	100	100	100	100	100	
7								
Outputs								
9	NOT price (BIF per pack)	2260	734	452	282	2119	734	479
10	Excise tax (BIF per pack)	779	779	779	779	779	779	779
11	VAT (BIF per pack)	628	299	238	201	674	299	244
12	Retail price (BIF per pack)	4120	1960	1560	1320	4420	1960	1509
13								
14	NOT price (USD per pack)	1.74	0.57	0.35	0.22	1.63	0.57	0.37
15	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60	0.60
16	VAT (USD per pack)	0.42	0.21	0.17	0.15	0.46	0.21	0.17
17	Retail price (USD per pack)	2.76	1.38	1.12	0.96	3.02	1.38	1.14
18								
19	Binding excise tax (specific or ad valorem)	ad valorem	ad valorem	ad valorem	ad valorem	ad valorem	ad valorem	
20	Excise tax as % of retail price	19	40	50	59	18	40	52
21								
22	Cigarette consumption (million cigarettes)	5	24	276	56	0	16	376
23								
24	Excise revenue (million BIF)	181	934	10744	2163	0	629	14652
25	Industry revenue (million BIF)	525	880	6230	784	1	593	9014
26	Total Consumption Expenditure (million BIF)	957	2349	21500	3662	2	1582	30053
27								
28	Excise revenue (million USD)	0.14	0.72	8.27	1.67	0.00	0.48	11.28
29	Industry revenue (million USD)	0.40	0.68	4.80	0.60	0.00	0.46	6.94
30	Total Consumption Expenditure (million USD)	0.74	1.81	16.55	2.82	0.00	1.22	23.14
31								
Percentage changes								
33	Excise tax (BIF per pack)	-31.0	112.2	244.9	451.8	-26.4	112.2	257.9
34	Retail price (BIF per pack)	3.0	50.7	95.0	163.9	10.5	50.7	82.2
35	Cigarette consumption (million cigarettes)	-1.2	-15.0	-22.8	-30.5	-3.9	-15.0	-23.1
36	Excise revenue (million BIF)	-31.8	80.4	166.2	283.3	-29.3	80.4	155.6
37	Industry revenue (million BIF)	-1.2	-15.0	-22.8	-30.5	-3.9	-15.0	-21.4
38	Total Consumption expenditure (million BIF)	1.8	28.2	50.5	83.3	6.2	28.2	48.1

Table 1.15 Scenario 1 Robustness of Price Elasticity ($\epsilon_p = -0.4$): Rwanda

SIMULATION							
Line		Imported Premium brand (KE)	Imported High priced brand (KE)	Imported Medium Priced Brand (KE)	Imported low priced brand (KE)	Imported High priced brand (BU)	Total or Average
Inputs							
1	Price elasticity	-0.4	-0.4	-0.4	-0.4	-0.4	
2	Excise tax per pack local currency	357	357	357	357	357	
3	Excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	18%	18%	18%	18%	18%	
5	Perc. Change in NOT price	0	0	0	0	0	
6	Retail & Wholesale margin (% on EW)	100	100	100	100	100	
7							
Outputs							
9	NOT price (RWF per pack)	581	508	242	145	508	253
10	Excise tax (RWF per pack)	357	357	357	357	357	357
11	VAT (RWF per pack)	190	174	117	96	174	119
12	Retail price (RWF per pack)	1244	1141	764	627	1141	779
13							
14	NOT price (USD per pack)	0.98	0.85	0.41	0.24	0.85	0.42
15	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60
16	VAT (USD per pack)	0.28	0.26	0.18	0.15	0.26	0.18
17	Retail price (USD per pack)	1.86	1.72	1.19	1.00	1.72	1.21
18							
19	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	
20	Excise tax as % of retail price	29	31	47	57	31	47
21							
22	Cigarette consumption (million packs)	3	16	176	35	3	233
23							
24	Excise revenue (million RWF)	48	284	3146	626	48	4153
25	Industry revenue (million RWF)	79	405	2134	255	68	2940
26	Total Consumption Expenditure (million RWF)	168	908	6734	1100	153	9064
27							
28	Excise revenue (million USD)	0.08	0.48	5.29	1.05	0.08	6.98
29	Industry revenue (million USD)	0.13	0.68	3.59	0.43	0.11	4.94
30	Total Consumption Expenditure (million USD)	0.28	1.53	11.32	1.85	0.26	15.23
31							
Percentage changes							
33	Excise tax (RWF per pack)	-18.1	-6.4	96.6	227.6	-6.4	106.8
34	Retail price (RWF per pack)	3.7	8.7	52.8	109.0	8.7	57.2
35	Cigarette consumption (million cigarettes)	-1.4	-3.3	-15.4	-24.7	-3.3	-16.0
36	Excise revenue (million RWF)	-19.3	-9.5	66.3	146.6	-9.5	61.4
37	Industry revenue (million RWF)	-1.4	-3.3	-15.4	-24.7	-3.3	-14.3
38	Total Consumption expenditure (million RWF)	2.2	5.1	29.2	57.3	5.1	28.0

Table 1.16 Scenario 1 Robustness of Industry Pricing Strategy (NOT increases by 20%): Kenya

SIMULATION							
Line		Premium Brand	High Priced Brand	Medium Priced Brand	Low Priced Brand	Imported Premium (non-EAC)	Total or Average
Inputs							
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	50	50	50	50	50	
3	Specific excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	16%	16%	16%	16%	16%	
5	Perc. Change in NOT price	20	20	20	20	20	
6							
7 Outputs							
8	NOT price (KES per pack)	86	55	43	23	64	45
9	Excise tax (KES per pack)	50	50	50	50	50	50
10	VAT (KES per pack)	22	17	15	12	22	15
11	Retail price (KES per pack)	157	122	108	84	157	110
12							
13	NOT price (USD per pack)	1.04	0.67	0.52	0.28	0.77	0.54
14	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60
15	VAT (USD per pack)	0.26	0.20	0.18	0.14	0.26	0.18
16	Retail price (USD per pack)	1.90	1.47	1.30	1.02	1.90	1.33
17							
18	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	
19	Excise tax as % of retail price	32	41	46	59	32	45
20							
21	Cigarette consumption (million cigarettes)	261	574	2903	650	95	4483
22							
23	Excise revenue (million KES)	648	1425	7211	1614	236	11135
24	Industry revenue (million KES)	1122	1586	6244	745	303	10000
25	Total Consumption Expenditure (million KES)	2054	3493	15608	2736	748	24639
26							
27	Excise revenue (million USD)	7.83	17.21	87.09	19.49	2.85	134.48
28	Industry revenue (million USD)	13.55	19.16	75.41	8.99	3.66	120.77
29	Total Consumption Expenditure (million USD)	24.80	42.19	188.50	33.05	9.04	297.57
30							
31 Percentage changes							
32	Excise tax (KES per pack)	1.4	57.7	102.8	107.0	1.4	89.6
33	Retail price (KES per pack)	12.4	35.3	53.6	68.4	12.4	48.8
34	Cigarette consumption (million cigarettes)	-6.8	-16.5	-22.5	-26.5	-6.8	-21.4
35	Excise revenue (million KES)	-5.5	31.7	57.1	52.1	-5.5	45.2
36	Industry revenue (million KES)	11.9	0.2	-7.0	-11.8	11.9	-4.0
37	Total Consumption expenditure (million KES)	4.8	13.0	19.0	23.7	4.8	16.8

Table 1.17 Scenario 1 Robustness of Industry Pricing Strategy (NOT increases by 20%): Tanzania

		SIMULATION						
Line		Premium Brand	High Priced Brand	Medium Priced Brand	Low Priced Brand	Imported Premium Brand (non-EAC)	Imported Premium Brand (EAC)	Total or Average
Inputs								
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	956	956	956	956	956	956	
3	Specific excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	18%	18%	18%	18%	18%	18%	
5	Perc. Change in NOT price	20	20	20	20		20	
6								
7 Outputs								
8	NOT price (TZS per pack)	3602	2585	1624	820	2389	3225	1618
9	Excise tax (TZS per pack)	956	956	956	956	956	956	956
10	VAT (TZS per pack)	820	637	464	320	753	753	465
11	Retail price (TZS per pack)	5378	4178	3044	2095	4933	4933	3045
12								
13	NOT price (USD per pack)	2.26	1.62	1.02	0.51	1.50	2.02	1.02
14	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60	0.60
15	VAT (USD per pack)	0.52	0.40	0.29	0.20	0.47	0.47	0.29
16	Retail price (USD per pack)	3.38	2.62	1.91	1.32	3.10	3.10	1.91
17								
18	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	Specific	
19	Excise tax as % of retail price	18	23	31	46	19	19	31
20								
21	Cigarette consumption (million cigarettes)	50	286	3278	584	37	25	4261
22								
23	Excise revenue (million TZS)	2401	13680	156672	27922	1770	1180	203626
24	Industry revenue (million TZS)	9047	36999	266200	23952	4425	3982	344606
25	Total Consumption Expenditure (million TZS)	13509	59802	498989	61212	9138	6092	648741
26								
27	Excise revenue (million USD)	1.51	8.59	98.35	17.53	1.11	0.74	127.83
28	Industry revenue (million USD)	5.68	23.23	167.11	15.04	2.78	2.50	216.33
29	Total Consumption Expenditure (million USD)	8.48	37.54	313.24	38.43	5.74	3.82	407.24
30								
31 Percentage changes								
32	Excise tax (TZS per pack)	146.2	146.2	146.2	482.1	36.1	36.1	190.7
33	Retail price (TZS per pack)	34.5	39.3	48.1	109.5	23.3	23.3	53.3
34	Cigarette consumption (million cigarettes)	-16.2	-17.9	-20.9	-35.0	-11.8	-11.8	-22.8
35	Excise revenue (million TZS)	106.3	102.1	94.9	278.2	20.0	20.0	107.4
36	Industry revenue (million TZS)	0.6	-1.5	-5.0	-22.0	5.8	5.8	-5.7
37	Total Consumption expenditure (million TZS)	12.7	14.3	17.2	36.1	8.8	8.8	18.2

Table 1.18 Scenario 1 Robustness of Industry Pricing Strategy (NOT increases by 20%): Uganda

SIMULATION							
Line		Imported Premium brand (KE)	Imported High priced brand (KE)	Imported Medium Priced Brand (KE)	Imported Low priced brand (KE)	Imported High priced brand (TZ)	Total or Average
Inputs							
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	1383	1383	1383	1383	1383	
3	Specific excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	18%	18%	18%	18%	18%	
5	Perc. Change in NOT price	20	20	20	20	20	
6							
Outputs							
8	NOT price (UGS per pack)	2748	1942	1434	925	1942	1407
9	Excise tax (UGS per pack)	1383	1383	1383	1383	1383	1383
10	VAT (UGS per pack)	744	599	507	416	599	502
11	Retail price (UGS per pack)	4874	3924	3324	2724	3924	3292
12							
13	NOT price (USD per pack)	1.19	0.84	0.62	0.40	0.84	0.61
14	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60
15	VAT (USD per pack)	0.32	0.26	0.22	0.18	0.26	0.22
16	Retail price (USD per pack)	2.11	1.70	1.44	1.18	1.70	1.43
17							
18	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	
19	Excise tax as % of retail price	28	35	42	51	35	42
20							
21	Cigarette consumption (million cigarettes)	8	42	514	109	10	684
22							
23	Excise revenue (million UGS)	561	2902	35562	7562	688	47276
24	Industry revenue (million UGS)	1116	4076	36871	5060	966	48089
25	Total Consumption Expenditure (million UGS)	1979	8234	85471	14894	1952	112530
26							
27	Excise revenue (million USD)	0.24	1.26	15.43	3.28	0.30	20.51
28	Industry revenue (million USD)	0.48	1.77	16.00	2.20	0.42	20.86
29	Total Consumption Expenditure (million USD)	0.86	3.57	37.08	6.46	0.85	48.82
30							
Percentage changes							
32	Excise tax (UGS per pack)	25.7	176.6	176.6	176.6	176.6	174.8
33	Retail price (UGS per pack)	21.9	57.0	66.2	81.6	57.0	67.4
34	Cigarette consumption (million cigarettes)	-11.2	-23.5	-26.0	-29.6	-23.5	-26.2
35	Excise revenue (million UGS)	11.7	111.7	104.8	94.7	111.7	101.6
36	Industry revenue (million UGS)	6.6	-8.2	-11.2	-15.5	-8.2	-11.0
37	Total Consumption expenditure (million UGS)	8.3	20.1	23.0	27.8	20.1	23.1

Table 1.19 Scenario 1 Robustness of Industry Pricing Strategy (NOT increases by 20%): Burundi

SIMULATION								
Line		Premium Brand	High Priced Brand	Medium Priced Brand	Low Priced Brand	Imported Premium brand (non-EAC)	Imported Premium brand (EAC)	Total or Average
Inputs								
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	779	779	779	779	779	779	
3	Specific excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	0.6	
4	Ad valorem excise rate	100% on EW	100% on EW	100% on EW	100% on EW	100% on EW	100% on EW	
5	VAT rate	18%	18%	18%	18%	18%	18%	
6	Perc. Change in NOT price	20	20	20	20	20	20	
7	Retail & Wholesale margin (% on EW)	100	100	100	100	100	100	
8								
Outputs								
10	NOT price (BIF per pack)	2712	881	542	339	2542	881	580
11	Excise tax (BIF per pack)	779	779	779	779	779	779	779
12	VAT (BIF per pack)	726	331	257	214	781	331	266
13	Retail price (BIF per pack)	4760	2168	1688	1400	5120	2168	1633
14								
15	NOT price (USD per pack)	2.09	0.68	0.42	0.26	1.96	0.68	0.45
16	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60	0.60
17	VAT (USD per pack)	0.48	0.23	0.18	0.15	0.53	0.23	0.19
18	Retail price (USD per pack)	3.17	1.51	1.20	1.02	3.48	1.51	1.24
19								
20	Binding excise tax (specific or ad valorem)	ad valorem	ad valorem	ad valorem	ad valorem	ad valorem	ad valorem	
21	Excise tax as % of retail price	16	36	46	56	15	36	48
22								
23	Cigarette consumption (million cigarettes)	4	21	231	45	0	14	315
24								
25	Excise revenue (million BIF)	165	812	9011	1736	0	547	12271
26	Industry revenue (million BIF)	574	918	6270	755	1	618	9137
27	Total Consumption Expenditure (million BIF)	1008	2258	19511	3117	2	1521	27418
28								
29	Excise revenue (million USD)	0.13	0.63	6.94	1.34	0.00	0.42	9.45
30	Industry revenue (million USD)	0.44	0.71	4.83	0.58	0.00	0.48	7.03
31	Total Consumption Expenditure (million USD)	0.78	1.74	15.02	2.40	0.00	1.17	21.11
32								
Percentage changes								
34	Excise tax (BIF per pack)	-31.0	112.2	244.9	451.8	-26.4	112.2	255.7
35	Retail price (BIF per pack)	19.0	66.7	111.0	179.9	28.0	66.7	96.9
36	Cigarette consumption (million cigarettes)	-9.9	-26.1	-35.3	-44.3	-13.7	-26.1	-35.6
37	Excise revenue (million BIF)	-37.8	56.8	123.2	207.6	-36.5	56.8	114.0
38	Industry revenue (million BIF)	8.1	-11.3	-22.3	-33.1	3.5	-11.3	-20.3
39	Total Consumption expenditure (million BIF)	7.2	23.2	36.6	56.0	10.4	23.2	35.1

Table 1.20 Scenario 1 Robustness of Industry Pricing Strategy (NOT increases by 20%): Rwanda

SIMULATION						
Line		Imported Premium brand (KE)	Imported High priced brand (KE)	Imported Medium Priced Brand (KE)	Imported low priced brand (KE)	Imported High priced brand (BU)
Inputs						
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6
2	Excise tax per pack local currency	357	357	357	357	357
3	Excise tax per pack USD	0.6	0.6	0.6	0.6	0.6
4	VAT rate	18%	18%	18%	18%	18%
5	Perc. Change in NOT price	20	20	20	20	20
6	Retail & Wholesale margin (% on EW)	100	100	100	100	100
7						
Outputs						
9	NOT price (RWF per pack)	697	610	291	174	610
10	Excise tax (RWF per pack)	357	357	357	357	357
11	VAT (RWF per pack)	215	196	127	102	196
12	Retail price (RWF per pack)	1409	1285	833	668	1285
13						
14	NOT price (USD per pack)	1.17	1.03	0.49	0.29	1.03
15	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60
16	VAT (USD per pack)	0.32	0.29	0.20	0.16	0.29
17	Retail price (USD per pack)	2.09	1.92	1.28	1.05	1.92
18						
19	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific
20	Excise tax as % of retail price	25	28	43	53	28
21						
22	Cigarette consumption (million packs)	2	15	154	29	2
23						
24	Excise revenue (million RWF)	44	260	2751	523	44
25	Industry revenue (million RWF)	87	445	2239	255	75
26	Total Consumption Expenditure (million RWF)	175	937	6416	979	158
27						
28	Excise revenue (million USD)	0.07	0.44	4.62	0.88	0.07
29	Industry revenue (million USD)	0.15	0.75	3.76	0.43	0.13
30	Total Consumption Expenditure (million USD)	0.29	1.57	10.78	1.64	0.27
31						
Percentage changes						
33	Excise tax (RWF per pack)	-18.1	-6.4	96.6	227.6	-6.4
34	Retail price (RWF per pack)	17.4	22.4	66.5	122.7	22.4
35	Cigarette consumption (million cigarettes)	-9.2	-11.4	-26.1	-37.2	-11.4
36	Excise revenue (million RWF)	-25.6	-17.1	45.4	105.9	-17.1
37	Industry revenue (million RWF)	9.0	6.3	-11.3	-24.6	6.3
38	Total Consumption expenditure (million RWF)	6.6	8.5	23.1	40.0	8.5

Table 1.21 Scenario 1 Robustness of Industry Pricing Strategy (NOT decreases by 20%): Kenya

SIMULATION						
Line		Premium Brand	High Priced Brand	Medium Priced Brand	Low Priced Brand	Imported Premium (non-EAC) Total or Average
Inputs						
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6
2	Specific excise tax per pack local currency	50	50	50	50	50
3	Specific excise tax per pack USD	0.6	0.6	0.6	0.6	0.6
4	VAT rate	16%	16%	16%	16%	16%
5	Perc. Change in NOT price	-20	-20	-20	-20	-20
6						
Outputs						
7						
8	NOT price (KES per pack)	57	37	29	15	42
9	Excise tax (KES per pack)	50	50	50	50	50
10	VAT (KES per pack)	17	14	13	10	17
11	Retail price (KES per pack)	124	100	91	75	124
12						
13	NOT price (USD per pack)	0.69	0.45	0.35	0.18	0.51
14	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60
15	VAT (USD per pack)	0.21	0.17	0.15	0.13	0.21
16	Retail price (USD per pack)	1.50	1.21	1.10	0.91	1.50
17						
18	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific
19	Excise tax as % of retail price	40	49	55	66	40
20						
21	Cigarette consumption (million cigarettes)	301	644	3205	693	110
22						
23	Excise revenue (million KES)	747	1599	7961	1721	272
24	Industry revenue (million KES)	863	1186	4595	530	233
25	Total Consumption Expenditure (million KES)	1867	3231	14565	2611	680
26						
27	Excise revenue (million USD)	9.02	19.31	96.14	20.79	3.29
28	Industry revenue (million USD)	10.42	14.33	55.50	6.40	2.81
29	Total Consumption Expenditure (million USD)	22.55	39.02	175.90	31.54	8.22
30						
Percentage changes						
31						
32	Excise tax (KES per pack)	1.4	57.7	102.8	107.0	1.4
33	Retail price (KES per pack)	-11.3	11.6	29.8	50.7	-11.3
34	Cigarette consumption (million cigarettes)	7.5	-6.3	-14.5	-21.6	7.5
35	Excise revenue (million KES)	9.0	47.7	73.5	62.2	9.0
36	Industry revenue (million KES)	-14.0	-25.1	-31.6	-37.3	-14.0
37	Total Consumption expenditure (million KES)	-4.7	4.5	11.1	18.1	-4.7

Table 1.22 Scenario 1 Robustness of Industry Pricing Strategy (NOT decreases by 20%): Tanzania

		SIMULATION						
Line		Premium Brand	High Priced Brand	Medium Priced Brand	Low Priced Brand	Imported Premium Brand (non-EAC)	Imported Premium Brand (EAC)	Total or Average
	Inputs							
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	956	956	956	956	956	956	
3	Specific excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	18%	18%	18%	18%	18%	18%	
5	Perc. Change in NOT price	-20	-20	-20	-20	-20	-20	
6								
7	Outputs							
8	NOT price (TZS per pack)	2401	1723	1083	547	1593	2150	1084
9	Excise tax (TZS per pack)	956	956	956	956	956	956	956
10	VAT (TZS per pack)	604	482	367	270	559	559	368
11	Retail price (TZS per pack)	3961	3161	2405	1773	3665	3665	2413
12								
13	NOT price (USD per pack)	1.51	1.08	0.68	0.34	1.00	1.35	0.68
14	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60	0.60
15	VAT (USD per pack)	0.38	0.30	0.23	0.17	0.35	0.35	0.23
16	Retail price (USD per pack)	2.49	1.98	1.51	1.11	2.30	2.30	1.51
17								
18	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	Specific	
19	Excise tax as % of retail price	24	30	40	54	26	26	40
20								
21	Cigarette consumption (million cigarettes)	60	338	3769	642	44	30	4883
22								
23	Excise revenue (million TZS)	2882	16153	180127	30661	2115	1410	233348
24	Industry revenue (million TZS)	7240	29125	204034	17534	3525	3172	264630
25	Total Consumption Expenditure (million TZS)	11944	53428	453310	56871	8111	5407	589070
26								
27	Excise revenue (million USD)	1.81	10.14	113.07	19.25	1.33	0.89	146.48
28	Industry revenue (million USD)	4.54	18.28	128.08	11.01	2.21	1.99	166.12
29	Total Consumption Expenditure (million USD)	7.50	33.54	284.56	35.70	5.09	3.39	369.79
30								
31	Percentage changes							
32	Excise tax (TZS per pack)	146.2	146.2	146.2	482.1	36.1	36.1	188.7
33	Retail price (TZS per pack)	-1.0	5.4	17.1	77.3	-8.4	-8.4	21.5
34	Cigarette consumption (million cigarettes)	0.6	-3.1	-9.0	-28.7	5.4	5.4	-11.5
35	Excise revenue (million TZS)	147.7	138.6	124.0	315.3	43.4	43.4	137.7
36	Industry revenue (million TZS)	-19.5	-22.5	-27.2	-42.9	-15.7	-15.7	-27.6
37	Total Consumption expenditure (million TZS)	-0.4	2.1	6.5	26.5	-3.4	-3.4	7.3

Table 1.23 Scenario 1 Robustness of Industry Pricing Strategy (NOT decreases by 20%): Uganda

		SIMULATION					
Line		Imported Premium brand (KE)	Imported High priced brand (KE)	Imported Medium Priced Brand (KE)	Imported low priced brand (KE)	Imported High priced brand (TZ)	Total or Average
Inputs							
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	1383	1383	1383	1383	1383	
3	Specific excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	18%	18%	18%	18%	18%	
5	Perc. Change in NOT price	-20	-20	-20	-20	-20	
6							
Outputs							
8	NOT price (UGS per pack)	1832	1295	956	617	1295	940
9	Excise tax (UGS per pack)	1383	1383	1383	1383	1383	1383
10	VAT (UGS per pack)	579	482	421	360	482	418
11	Retail price (UGS per pack)	3794	3160	2760	2360	3160	2741
12							
13	NOT price (USD per pack)	0.79	0.56	0.41	0.27	0.56	0.41
14	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60
15	VAT (USD per pack)	0.25	0.21	0.18	0.16	0.21	0.18
16	Retail price (USD per pack)	1.65	1.37	1.20	1.02	1.37	1.19
17							
18	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	
19	Excise tax as % of retail price	36	44	50	59	44	51
20							
21	Cigarette consumption (million cigarettes)	9	48	573	119	11	760
22							
23	Excise revenue (million UGS)	652	3296	39637	8211	781	52578
24	Industry revenue (million UGS)	864	3086	27397	3663	732	35742
25	Total Consumption Expenditure (million UGS)	1790	7532	79101	14011	1785	104218
26							
27	Excise revenue (million USD)	0.28	1.43	17.20	3.56	0.34	22.81
28	Industry revenue (million USD)	0.37	1.34	11.89	1.59	0.32	15.51
29	Total Consumption Expenditure (million USD)	0.78	3.27	34.32	6.08	0.77	45.21
30							
Percentage changes							
32	Excise tax (UGS per pack)	25.7	176.6	176.6	176.6	176.6	174.7
33	Retail price (UGS per pack)	-5.2	26.4	38.0	57.3	26.4	39.6
34	Cigarette consumption (million cigarettes)	3.2	-13.1	-17.5	-23.6	-13.1	-18.0
35	Excise revenue (million UGS)	29.8	140.4	128.2	111.4	140.4	124.2
36	Industry revenue (million UGS)	-17.4	-30.5	-34.0	-38.9	-30.5	-33.8
37	Total Consumption expenditure (million UGS)	-2.1	9.9	13.9	20.2	9.9	14.0

Table 1.24 Scenario 1 Robustness of Industry Pricing Strategy (NOT decreases by 20%): Burundi

		SIMULATION						
Line		Premium brand	High priced brand	Medium Priced Brand	low priced brand	Imported Premium from others	Imported Premium in EAC	Total or Average
Inputs								
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	779	779	779	779	779	779	
3	Specific excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	18%	18%	18%	18%	18%	18%	
5	Perc. Change in NOT price	-20	-20	-20	-20	-20	-20	
6	Retail & Wholesale margin (% on EW)	100	100	100	100	100	100	
7								
Outputs								
9	NOT price (BIF per pack)	1808	588	362	226	1695	588	390
10	Excise tax (BIF per pack)	779	779	779	779	779	779	779
11	VAT (BIF per pack)	531	267	218	189	567	267	225
12	Retail price (BIF per pack)	3480	1752	1432	1240	3720	1752	1400
13								
14	NOT price (USD per pack)	1.39	0.45	0.28	0.17	1.30	0.45	0.30
15	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60	0.60
16	VAT (USD per pack)	0.36	0.19	0.16	0.14	0.39	0.19	0.16
17	Retail price (USD per pack)	2.35	1.24	1.04	0.91	2.56	1.24	1.06
18								
19	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	Specific	
20	Excise tax as % of retail price	22	44	54	63	21	44	56
21								
22	Cigarette consumption (million cigarettes)	5	24	253	47	0	16	346
23								
24	Excise revenue (million BIF)	199	920	9878	1848	0	619	13465
25	Industry revenue (million BIF)	462	693	4583	536	1	467	6742
26	Total Consumption Expenditure (million BIF)	889	2067	18146	2939	2	1392	25435
27								
28	Excise revenue (million USD)	0.15	0.71	7.60	1.42	0.00	0.48	10.37
29	Industry revenue (million USD)	0.36	0.53	3.53	0.41	0.00	0.36	5.19
30	Total Consumption Expenditure (million USD)	0.68	1.59	13.97	2.26	0.00	1.07	19.58
32								
Percentage changes								
34	Excise tax (BIF per pack)	-31.0	112.2	244.9	451.8	-26.4	112.2	254.0
35	Retail price (BIF per pack)	-13.0	34.7	79.0	147.9	-7.0	34.7	68.8
36	Cigarette consumption (million cigarettes)	8.7	-16.3	-29.0	-40.7	4.5	-16.3	-29.3
37	Excise revenue (million BIF)	-25.0	77.6	144.7	227.5	-23.1	77.6	134.9
38	Industry revenue (million BIF)	-13.0	-33.1	-43.2	-52.5	-16.4	-33.1	-41.2
39	Total Consumption expenditure (million BIF)	-5.4	12.8	27.0	47.1	-2.9	12.8	25.3

Table 1.25 Scenario 1 Robustness of Industry Pricing Strategy (NOT decreases by 20%): Rwanda

SIMULATION							
Line		Imported Premium brand (KE)	Imported High priced brand (KE)	Imported Medium Priced Brand (KE)	Imported low priced brand (KE)	Imported High priced brand (BU)	Total or Average
Inputs							
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Excise tax per pack local currency	357	357	357	357	357	
3	Excise tax per pack USD	0.6	0.6	0.6	0.6	0.6	
4	VAT rate	18%	18%	18%	18%	18%	
5	Perc. Change in NOT price	-20	-20	-20	-20	-20	
6	Retail & Wholesale margin (% on EW)	100	100	100	100	100	
7							
Outputs							
9	NOT price (RWF per pack)	465	407	194	116	407	205
10	Excise tax (RWF per pack)	357	357	357	357	357	357
11	VAT (RWF per pack)	165	152	106	89	152	109
12	Retail price (RWF per pack)	1080	997	696	586	997	712
13							
14	NOT price (USD per pack)	0.78	0.68	0.33	0.20	0.68	0.34
15	Excise tax (USD per pack)	0.60	0.60	0.60	0.60	0.60	0.60
16	VAT (USD per pack)	0.25	0.23	0.17	0.14	0.23	0.17
17	Retail price (USD per pack)	1.63	1.51	1.09	0.94	1.51	1.11
18							
19	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	
20	Excise tax as % of retail price	33	36	51	61	36	51
21							
22	Cigarette consumption (million packs)	3	17	171	31	3	225
23							
24	Excise revenue (million RWF)	52	303	3055	562	51	4024
25	Industry revenue (million RWF)	68	345	1658	183	58	2312
26	Total Consumption Expenditure (million RWF)	158	846	5953	923	142	8022
27							
28	Excise revenue (million USD)	0.09	0.51	5.13	0.94	0.09	6.76
29	Industry revenue (million USD)	0.11	0.58	2.79	0.31	0.10	3.89
30	Total Consumption Expenditure (million USD)	0.27	1.42	10.00	1.55	0.24	13.48
31							
Percentage changes							
33	Excise tax (RWF per pack)	-18.1	-6.4	96.6	227.6	-6.4	104.4
34	Retail price (RWF per pack)	-10.0	-5.0	39.1	95.3	-5.0	42.4
35	Cigarette consumption (million cigarettes)	6.5	3.1	-17.9	-32.4	3.1	-18.6
36	Excise revenue (million RWF)	-12.7	-3.4	61.5	121.4	-3.4	56.4
37	Industry revenue (million RWF)	-14.8	-17.5	-34.3	-46.0	-17.5	-32.6
38	Total Consumption expenditure (million RWF)	-4.1	-2.0	14.2	31.9	-2.0	13.2

Table 1.26 Scenario 1 Robustness of Excise Tax (excise=0.8): Kenya

SIMULATION							
Line		Premium brand	High priced brand	Medium Priced Brand	low priced brand	Imported Premium	Total or Average
	Inputs						
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	66	66	66	66	66	
3	Specific excise tax per pack USD	0.8	0.8	0.8	0.8	0.8	
5	VAT rate	16%	16%	16%	16%	16%	
6	Perc. Change in NOT price	0	0	0	0	0	
9							
10	Outputs						
11	NOT price (KES per pack)	72	46	36	19	53	37
12	Excise tax (KES per pack)	66	66	66	66	66	66
13	VAT (KES per pack)	22	18	16	14	22	17
14	Retail price (KES per pack)	160	130	118	99	160	121
15							
16	NOT price (USD per pack)	0.87	0.56	0.43	0.23	0.64	0.45
17	Excise tax (USD per pack)	0.80	0.80	0.80	0.80	0.80	0.80
18	VAT (USD per pack)	0.27	0.22	0.20	0.16	0.27	0.20
19	Retail price (USD per pack)	1.93	1.57	1.43	1.20	1.93	1.46
20							
21	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	
22	Excise tax as % of retail price	41	51	56	67	41	55
23							
24	Cigarette consumption (million cigarettes)	258	551	2745	593	94	4242
25							
26	Excise revenue (million KES)	856	1826	9093	1964	312	14050
27	Industry revenue (million KES)	926	1270	4921	566	250	7933
28	Total Consumption Expenditure (million KES)	2067	3592	16256	2935	753	25603
29							
30	Excise revenue (million USD)	10.33	22.05	109.82	23.72	3.77	169.69
31	Industry revenue (million USD)	11.19	15.34	59.43	6.84	3.02	95.81
32	Total Consumption Expenditure (million USD)	24.96	43.38	196.32	35.45	9.10	309.21
33							
34	Percentage changes						
35	Excise tax (KES per pack)	35.2	110.3	170.4	176.0	35.2	152.1
36	Retail price (KES per pack)	14.3	44.8	69.2	98.0	14.3	63.5
37	Cigarette consumption (million cigarettes)	-7.7	-19.8	-26.7	-33.0	-7.7	-25.6
38	Excise revenue (million KES)	24.8	68.7	98.1	85.0	24.8	83.2
39	Industry revenue (million KES)	-7.7	-19.8	-26.7	-33.0	-7.7	-23.8
40	Total Consumption expenditure (million KES)	5.5	16.1	24.0	32.7	5.5	21.4

Table 1.27 Scenario 1 Robustness of Excise Tax (excise=0.8): Tanzania

		SIMULATION						
Line		Premium brand	High priced brand	Medium Priced Brand	low priced brand	Imported Premium from others	Imported Premium in EAC	Total or Average
Inputs								
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	1274	1274	1274	1274	1274	1274	
3	Specific excise tax per pack USD	0.8	0.8	0.8	0.8	0.8	0.8	
5	VAT rate	18%	18%	18%	18%	18%	18%	
6	Perc. Change in NOT price	0	0	0	0	0	0	
9								
Outputs								
11	NOT price (TZS per pack)	3002	2154	1353	683	1991	2687	1355
12	Excise tax (TZS per pack)	1274	1274	1274	1274	1274	1274	1274
13	VAT (TZS per pack)	770	617	473	352	713	713	474
14	Retail price (TZS per pack)	5046	4046	3101	2310	4675	4675	3110
15								
16	NOT price (USD per pack)	1.88	1.35	0.85	0.43	1.25	1.69	0.85
17	Excise tax (USD per pack)	0.80	0.80	0.80	0.80	0.80	0.80	0.80
18	VAT (USD per pack)	0.48	0.39	0.30	0.22	0.45	0.45	0.30
19	Retail price (USD per pack)	3.17	2.54	1.95	1.45	2.93	2.93	1.95
20								
21	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	Specific	
22	Excise tax as % of retail price	25	31	41	55	27	27	41
23								
24	Cigarette consumption (million cigarettes)	52	292	3243	554	38	26	4205
25								
26	Excise revenue (million TZS)	3324	18591	206660	35309	2437	1625	267946
27	Industry revenue (million TZS)	7830	31425	219458	18930	3808	3427	284878
28	Total Consumption Expenditure (million TZS)	13162	59018	502819	64002	8942	5961	653905
29								
30	Excise revenue (million USD)	2.09	11.67	129.73	22.16	1.53	1.02	168.20
31	Industry revenue (million USD)	4.92	19.73	137.76	11.88	2.39	2.15	178.83
32	Total Consumption Expenditure (million USD)	8.26	37.05	315.64	40.18	5.61	3.74	410.49
33								
Percentage changes								
35	Excise tax (TZS per pack)	228.3	228.3	228.3	676.1	81.5	81.5	285.1
36	Retail price (TZS per pack)	26.1	34.9	50.9	131.0	16.9	16.9	56.6
37	Cigarette consumption (million cigarettes)	-13.0	-16.4	-21.7	-38.4	-8.9	-8.9	-23.8
38	Excise revenue (million TZS)	185.7	174.6	157.1	378.3	65.3	65.3	172.9
39	Industry revenue (million TZS)	-13.0	-16.4	-21.7	-38.4	-8.9	-8.9	-22.1
40	Total Consumption expenditure (million TZS)	9.8	12.8	18.1	42.3	6.4	6.4	19.1

Table 1.28 Scenario 1 Robustness of Excise Tax (excise=0.8): Uganda

		SIMULATION					
Line		Imported Premium brand (KE)	Imported High priced brand (KE)	Imported Medium Priced Brand (KE)	Imported low priced brand (KE)	Imported high priced brand (TZ)	Total or Average
Inputs							
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	1844	1844	1844	1844	1844	
3	Specific excise tax per pack USD	0.8	0.8	0.8	0.8	0.8	
5	VAT rate	18%	18%	18%	18%	18%	
6	Perc. Change in NOT price	0	0	0	0	0	
9							
10 Outputs							
11	NOT price (UGS per pack)	2290	1619	1195	771	1619	1175
12	Excise tax (UGS per pack)	1844	1844	1844	1844	1844	1844
13	VAT (UGS per pack)	744	623	547	471	623	543
14	Retail price (UGS per pack)	4878	4086	3586	3086	4086	3563
15							
16	NOT price (USD per pack)	0.99	0.70	0.52	0.33	0.70	0.51
17	Excise tax (USD per pack)	0.80	0.80	0.80	0.80	0.80	0.80
18	VAT (USD per pack)	0.32	0.27	0.24	0.20	0.27	0.24
19	Retail price (USD per pack)	2.12	1.77	1.56	1.34	1.77	1.55
20							
21	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	
22	Excise tax as % of retail price	38	45	51	60	45	52
23							
24	Cigarette consumption (million cigarettes)	8	41	492	102	10	653
25							
26	Excise revenue (million UGS)	748	3780	45403	9403	896	60229
27	Industry revenue (million UGS)	929	3318	29421	3932	786	38387
28	Total Consumption Expenditure (million UGS)	1980	8375	88292	15735	1985	116367
29							
30	Excise revenue (million USD)	0.32	1.64	19.70	4.08	0.39	26.13
31	Industry revenue (million USD)	0.40	1.44	12.76	1.71	0.34	16.65
32	Total Consumption Expenditure (million USD)	0.86	3.63	38.30	6.83	0.86	50.48
33							
34 Percentage changes							
35	Excise tax (UGS per pack)	67.6	268.8	268.8	268.8	268.8	266.3
36	Retail price (UGS per pack)	21.9	63.4	79.3	105.7	63.4	81.5
37	Cigarette consumption (million cigarettes)	-11.2	-25.2	-29.1	-34.4	-25.2	-29.5
38	Excise revenue (million UGS)	48.9	175.7	161.4	142.1	175.7	156.8
39	Industry revenue (million UGS)	-11.2	-25.2	-29.1	-34.4	-25.2	-29.0
40	Total Consumption expenditure (million UGS)	8.3	22.2	27.1	35.0	22.2	27.3

Table 1.29 Scenario 1 Robustness of Excise Tax (excise=0.8): Burundi

SIMULATION							
	Premium brand	High priced brand	Medium Priced Brand	Low priced brand	Imported Premium from others	Imported Premium in EAC	Total or Average
Inputs							
Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	
Specific excise tax per pack local currency	1039	1039	1039	1039	1039	1039	
Specific excise tax per pack USD	0.8	0.8	0.8	0.8	0.8	0.8	
VAT rate	18%	18%	18%	18%	18%	18%	
Perc. Change in NOT price	0	0	0	0	0	0	
Outputs							
NOT price (BIF per pack)	2260	734	452	282	2119	734	487
Excise tax (BIF per pack)	1039	1039	1039	1039	1039	1039	1039
VAT (BIF per pack)	675	346	285	248	721	346	292
Retail price (BIF per pack)	4426	2266	1866	1626	4726	2266	1826
NOT price (USD per pack)	1.74	0.57	0.35	0.22	1.63	0.57	0.38
Excise tax (USD per pack)	0.80	0.80	0.80	0.80	0.80	0.80	0.80
VAT (USD per pack)	0.46	0.25	0.21	0.18	0.50	0.25	0.21
Retail price (USD per pack)	3.00	1.61	1.35	1.20	3.25	1.61	1.39
Binding excise tax (specific or ad valorem)	ad valorem	ad valorem	ad valorem	ad valorem	ad valorem	ad valorem	
Excise tax as % of retail price	23	46	56	64	22	46	57
Cigarette consumption (million cigarettes)	4	20	219	41	0	14	299
Excise revenue (million BIF)	230	1055	11377	2149	0	711	15523
Industry revenue (million BIF)	500	746	4948	584	1	502	7281
Total Consumption Expenditure (million BIF)	979	2302	20431	3363	2	1550	28627
Excise revenue (million USD)	0.18	0.81	8.76	1.65	0.00	0.55	11.95
Industry revenue (million USD)	0.38	0.57	3.81	0.45	0.00	0.39	5.61
Total Consumption Expenditure (million USD)	0.75	1.77	15.73	2.59	0.00	1.19	22.04
Percentage changes							
Excise tax (BIF per pack)	-8.0	183.0	359.8	635.8	-1.9	183.0	372.5
Retail price (BIF per pack)	10.7	74.3	133.3	225.3	18.2	74.3	120.3
Cigarette consumption (million cigarettes)	-5.9	-28.0	-38.7	-48.2	-9.5	-28.0	-38.9
Excise revenue (million BIF)	-13.4	103.8	181.9	280.9	-11.2	103.8	170.8
Industry revenue (million BIF)	-5.9	-28.0	-38.7	-48.2	-9.5	-28.0	-36.5
Total Consumption expenditure (million BIF)	4.1	25.6	43.0	68.4	6.9	25.6	41.1

Table 1.30 Scenario 1 Robustness of Excise Tax (excise=0.8): Rwanda

		SIMULATION					
Line		Imported Premium brand (KE)	Imported High priced brand (KE)	Imported Medium Priced Brand (KE)	Imported low priced brand (KE)	Imported low priced brand (TZ)	Total or Average
Inputs							
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Excise tax per pack local currency	476	476	476	476	476	
3	Excise tax per pack USD	0.8	0.8	0.8	0.8	0.8	
5	VAT rate	18%	18%	18%	18%	18%	
6	Perc. Change in NOT price		0	0	0	0	
9							
Outputs							
11	NOT price (RWF per pack)	581	508	242	145	508	256
12	Excise tax (RWF per pack)	476	476	476	476	476	476
13	VAT (RWF per pack)	211	196	138	117	196	141
14	Retail price (RWF per pack)	1385	1282	905	767	1282	925
15							
16	NOT price (USD per pack)	0.98	0.85	0.41	0.24	0.85	0.43
17	Excise tax (USD per pack)	0.80	0.80	0.80	0.80	0.80	0.80
18	VAT (USD per pack)	0.32	0.30	0.22	0.19	0.30	0.22
19	Retail price (USD per pack)	2.10	1.95	1.42	1.23	1.95	1.45
20							
21	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	
22	Excise tax as % of retail price	34	37	53	62	37	52
23							
24	Cigarette consumption (million packs)	3	15	147	27	2	194
25							
26	Excise revenue (million RWF)	60	348	3498	648	59	4612
27	Industry revenue (million RWF)	73	371	1780	198	62	2484
28	Total Consumption Expenditure (million RWF)	174	936	6648	1044	158	8960
29							
30	Excise revenue (million USD)	0.10	0.58	5.88	1.09	0.10	7.75
31	Industry revenue (million USD)	0.12	0.62	2.99	0.33	0.11	4.18
32	Total Consumption Expenditure (million USD)	0.29	1.57	11.17	1.76	0.26	15.06
33							
34	Percentage changes						
35	Excise tax (RWF per pack)	9.2	24.8	162.1	336.9	24.8	172.6
36	Retail price (RWF per pack)	15.4	22.1	80.9	155.8	22.1	85.4
37	Cigarette consumption (million cigarettes)	-8.2	-11.3	-29.5	-41.6	-11.3	-30.0
38	Excise revenue (million RWF)	0.2	10.8	84.9	155.1	10.8	79.3
39	Industry revenue (million RWF)	-8.2	-11.3	-29.5	-41.6	-11.3	-27.6
40	Total Consumption expenditure (million RWF)	5.9	8.3	27.6	49.4	8.3	26.5

Table 1.31 Scenario 1 Robustness of Excise Tax (excise=0.4): Kenya

SIMULATION							
Line		Premium Brand	High Priced Brand	Medium Priced Brand	Low Priced Brand	Imported Premium (non-EAC)	Total or Average
Inputs							
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	33	33	33	33	33	
3	Specific excise tax per pack USD	0.4	0.4	0.4	0.4	0.4	
4	VAT rate	16%	16%	16%	16%	16%	
5	Perc. Change in NOT price	0	0	0	0	0	
6							
7 Outputs							
8	NOT price (KES per pack)	72	46	36	19	53	37
9	Excise tax (KES per pack)	33	33	33	33	33	33
10	VAT (KES per pack)	17	13	11	8	17	11
11	Retail price (KES per pack)	122	92	80	61	122	82
12							
13	NOT price (USD per pack)	0.87	0.56	0.43	0.23	0.64	0.45
14	Excise tax (USD per pack)	0.40	0.40	0.40	0.40	0.40	0.40
15	VAT (USD per pack)	0.20	0.15	0.13	0.10	0.20	0.14
16	Retail price (USD per pack)	1.47	1.11	0.97	0.73	1.47	0.99
17							
18	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	
19	Excise tax as % of retail price	27	36	41	55	27	41
20							
21	Cigarette consumption (million cigarettes)	305	679	3458	788	111	5341
22							
23	Excise revenue (million KES)	504	1124	5727	1306	184	8845
24	Industry revenue (million KES)	1092	1564	6198	753	295	9902
25	Total Consumption Expenditure (million KES)	1852	3118	13833	2388	675	21866
26							
27	Excise revenue (million USD)	6.09	13.57	69.16	15.77	2.22	106.82
28	Industry revenue (million USD)	13.19	18.89	74.86	9.10	3.56	119.59
29	Total Consumption Expenditure (million USD)	22.36	37.66	167.06	28.84	8.15	264.08
30							
31 Percentage changes							
32	Excise tax (KES per pack)	-32.4	5.1	35.2	38.0	-32.4	26.5
33	Retail price (KES per pack)	-13.2	2.1	14.3	21.2	-13.2	10.8
34	Cigarette consumption (million cigarettes)	8.8	-1.2	-7.7	-10.9	8.8	-6.3
35	Excise revenue (million KES)	-26.4	3.8	24.8	23.0	-26.4	15.3
36	Industry revenue (million KES)	8.8	-1.2	-7.7	-10.9	8.8	-4.9
37	Total Consumption expenditure (million KES)	-5.5	0.8	5.5	8.0	-5.5	3.7

Table 1.32 Scenario 1 Robustness of Excise Tax (excise=0.4): Tanzania

		SIMULATION						
Line		Premium Brand	High Priced Brand	Medium Priced Brand	Low Priced Brand	Imported Premium Brand (non-EAC)	Imported Premium Brand (EAC)	Total or Average
Inputs								
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	637	637	637	637	637	637	
3	Specific excise tax per pack USD	0.4	0.4	0.4	0.4	0.4	0.4	
4	VAT rate	18%	18%	18%	18%	18%	18%	
5	Perc. Change in NOT price	0	0	0	0	0	0	
6								
7 Outputs								
8	NOT price (TZS per pack)	3002	2154	1353	683	1991	2687	1345
9	Excise tax (TZS per pack)	637	637	637	637	637	637	637
10	VAT (TZS per pack)	655	502	358	238	598	598	358
11	Retail price (TZS per pack)	4294	3294	2349	1558	3923	3923	2347
12								
13	NOT price (USD per pack)	1.88	1.35	0.85	0.43	1.25	1.69	0.84
14	Excise tax (USD per pack)	0.40	0.40	0.40	0.40	0.40	0.40	0.40
15	VAT (USD per pack)	0.41	0.32	0.22	0.15	0.38	0.38	0.22
16	Retail price (USD per pack)	2.70	2.07	1.47	0.98	2.46	2.46	1.47
17								
18	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	Specific	
19	Excise tax as % of retail price	15	19	27	41	16	16	27
20								
21	Cigarette consumption (million cigarettes)	57	330	3823	691	42	28	4972
22								
23	Excise revenue (million TZS)	1830	10507	121805	22017	1354	903	158417
24	Industry revenue (million TZS)	8623	35521	258698	23609	4229	3807	334487
25	Total Consumption Expenditure (million TZS)	12335	54314	448994	53839	8335	5557	583373
26								
27	Excise revenue (million USD)	1.15	6.60	76.46	13.82	0.85	0.57	99.45
28	Industry revenue (million USD)	5.41	22.30	162.40	14.82	2.66	2.39	209.97
29	Total Consumption Expenditure (million USD)	7.74	34.10	281.85	33.80	5.23	3.49	366.21
30								
31 Percentage changes								
32	Excise tax (TZS per pack)	64.1	64.1	64.1	288.1	-9.3	-9.3	94.2
33	Retail price (TZS per pack)	7.3	9.8	14.3	55.8	-1.9	-1.9	18.1
34	Cigarette consumption (million cigarettes)	-4.2	-5.4	-7.7	-23.2	1.2	1.2	-9.9
35	Excise revenue (million TZS)	57.3	55.2	51.5	198.2	-8.2	-8.2	61.4
36	Industry revenue (million TZS)	-4.2	-5.4	-7.7	-23.2	1.2	1.2	-8.5
37	Total Consumption expenditure (million TZS)	2.9	3.8	5.5	19.7	-0.8	-0.8	6.3

Table 1.33 Scenario 1 Robustness of Excise Tax (excise=0.4): Uganda

		SIMULATION					
Line		Imported Premium brand (KE)	Imported High priced brand (KE)	Imported Medium Priced Brand (KE)	Imported Low Priced Brand (KES)	Imported High priced brand (TZ)	Total or Average
Inputs							
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	922	922	922	922	922	922
3	Specific excise tax per pack USD	0.4	0.4	0.4	0.4	0.4	0.4
4	VAT rate	18%	18%	18%	18%	18%	18%
5	Perc. Change in NOT price	0	0	0	0	0	0
6							
7 Outputs							
8	NOT price (UGS per pack)	2290	1619	1195	771	1619	1171
9	Excise tax (UGS per pack)	922	922	922	922	922	922
10	VAT (UGS per pack)	578	457	381	305	457	377
11	Retail price (UGS per pack)	3790	2998	2498	1998	2998	2470
12							
13	NOT price (USD per pack)	0.99	0.70	0.52	0.33	0.70	0.51
14	Excise tax (USD per pack)	0.40	0.40	0.40	0.40	0.40	0.40
15	VAT (USD per pack)	0.25	0.20	0.17	0.13	0.20	0.16
16	Retail price (USD per pack)	1.64	1.30	1.08	0.87	1.30	1.07
17							
18	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	
19	Excise tax as % of retail price	24	31	37	46	31	38
20							
21	Cigarette consumption (million cigarettes)	9	49	608	131	12	809
22							
23	Excise revenue (million UGS)	435	2268	28034	6036	538	37310
24	Industry revenue (million UGS)	1081	3981	36333	5049	944	47387
25	Total Consumption Expenditure (million UGS)	1789	7373	75953	13080	1748	99942
26							
27	Excise revenue (million USD)	0.19	0.98	12.16	2.62	0.23	16.19
28	Industry revenue (million USD)	0.47	1.73	15.76	2.19	0.41	20.56
29	Total Consumption Expenditure (million USD)	0.78	3.20	32.95	5.67	0.76	43.36
30							
31 <i>Percentage changes</i>							
32	Excise tax (UGS per pack)	-16.2	84.4	84.4	84.4	84.4	83.2
33	Retail price (UGS per pack)	-5.3	19.9	24.9	33.2	19.9	25.5
34	Cigarette consumption (million cigarettes)	3.3	-10.3	-12.5	-15.7	-10.3	-12.7
35	Excise revenue (million UGS)	-13.4	65.4	61.4	55.4	65.4	59.1
36	Industry revenue (million UGS)	3.3	-10.3	-12.5	-15.7	-10.3	-12.3
37	Total Consumption expenditure (million UGS)	-2.1	7.6	9.3	12.2	7.6	9.3

Table 1.34 Scenario 1 Robustness of Excise Tax (excise=0.4): Burundi

		SIMULATION						
Line		Premium brand	High priced brand	Medium Priced Brand	low priced brand	Imported Premium from others	Imported Premium in EAC	Total or Average
Inputs								
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	520	520	520	520	520	520	
3	Specific excise tax per pack USD	0.4	0.4	0.4	0.4	0.4	0.4	
4	VAT rate	18%	18%	18%	18%	18%	18%	
5	Perc. Change in NOT price	0	0	0	0	0	0	
6	Retail & Wholesale margin (% on EW)	100	100	100	100	100	100	
7								
Outputs								
9	NOT price (BIF per pack)	2260	734	452	282	2119	734	482
10	Excise tax (BIF per pack)	520	520	520	520	520	520	520
11	VAT (BIF per pack)	582	252	191	155	627	252	198
12	Retail price (BIF per pack)	3813	1653	1253	1013	4113	1653	1206
13								
14	NOT price (USD per pack)	1.74	0.57	0.35	0.22	1.63	0.57	0.37
15	Excise tax (USD per pack)	0.40	0.40	0.40	0.40	0.40	0.40	0.40
16	VAT (USD per pack)	0.39	0.17	0.13	0.11	0.42	0.17	0.14
17	Retail price (USD per pack)	2.52	1.14	0.88	0.73	2.78	1.14	0.91
18								
19	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	Specific	
20	Excise tax as % of retail price	14	31	41	51	13	31	43
21								
22	Cigarette consumption (million cigarettes)	5	24	274	53	0	16	372
23								
24	Excise revenue (million BIF)	126	635	7110	1374	0	427	9671
25	Industry revenue (million BIF)	547	897	6184	747	1	604	8980
26	Total Consumption Expenditure (million BIF)	922	2019	17147	2679	2	1360	24128
27								
28	Excise revenue (million USD)	0.10	0.49	5.47	1.06	0.00	0.33	7.45
29	Industry revenue (million USD)	0.42	0.69	4.76	0.58	0.00	0.46	6.91
30	Total Consumption Expenditure (million USD)	0.71	1.55	13.20	2.06	0.00	1.05	18.57
31								
Percentage changes								
33	Excise tax (BIF per pack)	-54.0	41.5	129.9	267.9	-50.9	41.5	137.4
34	Retail price (BIF per pack)	-4.7	27.2	56.6	102.6	2.8	27.2	45.3
35	Cigarette consumption (million cigarettes)	2.9	-13.4	-23.4	-33.8	-1.7	-13.4	-23.9
36	Excise revenue (million BIF)	-52.7	22.5	76.2	143.5	-51.8	22.5	68.7
37	Industry revenue (million BIF)	2.9	-13.4	-23.4	-33.8	-1.7	-13.4	-21.7
38	Total Consumption expenditure (million BIF)	-1.9	10.1	20.0	34.1	1.1	10.1	18.9

Table 1.35 Scenario 1 Robustness of Excise Tax (excise=0.4): Rwanda

		SIMULATION					
Line		Imported Premium brand (KE)	Imported High priced brand (KE)	Imported Medium Priced Brand (KE)	Imported low priced brand (KE)	Imported High priced brand (BU)	Total or Average
Inputs							
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Excise tax per pack local currency	238	238	238	238	238	
3	Excise tax per pack USD	0.4	0.4	0.4	0.4	0.4	
4	VAT rate	18%	18%	18%	18%	18%	
5	Perc. Change in NOT price	0	0	0	0	0	
6	Retail & Wholesale margin (% on EW)	100	100	100	100	100	
7							
Outputs							
9	NOT price (RWF per pack)	581	508	242	145	508	254
10	Excise tax (RWF per pack)	238	238	238	238	238	238
11	VAT (RWF per pack)	168	153	95	74	153	98
12	Retail price (RWF per pack)	1104	1001	624	487	1001	641
13							
14	NOT price (USD per pack)	0.98	0.85	0.41	0.24	0.85	0.43
15	Excise tax (USD per pack)	0.40	0.40	0.40	0.40	0.40	0.40
16	VAT (USD per pack)	0.25	0.23	0.15	0.12	0.23	0.15
17	Retail price (USD per pack)	1.62	1.48	0.95	0.76	1.48	0.98
18							
19	Binding excise tax (specific or ad valorem)	Specific	Specific	Specific	Specific	Specific	
20	Excise tax as % of retail price	22	24	38	49	24	38
21							
22	Cigarette consumption (million packs)	3	17	183	35	3	240
23							
24	Excise revenue (million RWF)	34	202	2173	417	34	2859
25	Industry revenue (million RWF)	84	431	2211	254	72	3052
26	Total Consumption Expenditure (million RWF)	159	847	5694	852	143	7695
27							
28	Excise revenue (million USD)	0.06	0.34	3.65	0.70	0.06	4.81
29	Industry revenue (million USD)	0.14	0.72	3.72	0.43	0.12	5.13
30	Total Consumption Expenditure (million USD)	0.27	1.42	9.57	1.43	0.24	12.93
31							
32	Percentage changes						
33	Excise tax (RWF per pack)	-45.4	-37.6	31.1	118.4	-37.6	37.2
34	Retail price (RWF per pack)	-8.0	-4.7	24.7	62.2	-4.7	27.4
35	Cigarette consumption (million cigarettes)	5.1	2.9	-12.4	-24.9	2.9	-13.3
36	Excise revenue (million RWF)	-42.6	-35.8	14.8	64.0	-35.8	11.1
37	Industry revenue (million RWF)	5.1	2.9	-12.4	-24.9	2.9	-11.0
38	Total Consumption expenditure (million RWF)	-3.3	-1.9	9.3	21.8	-1.9	8.6

Table 2.1 Scenario 2: Kenya

SIMULATION							
Line		Premium Brand	High Priced Brand	Medium Priced Brand	Low Priced Brand	Imported Premium (non-EAC)	Total or Average
Inputs							
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	62	50	50	50	62	
3	Specific excise tax per pack USD		0.6	0.6	0.6		
4	Ad valorem excise rate on RSP	40%				40%	
5	VAT rate	16%	16%	16%	16%	16%	
6	Perc. Change in NOT price	0	0	0	0	0	
7							
8 Outputs							
9	NOT price (KES per pack)	72	46	36	19	53	37
10	Excise tax (KES per pack)	62	50	50	50	62	51
11	VAT (KES per pack)	21	15	14	11	21	14
12	Retail price (KES per pack)	155	111	99	80	155	102
13							
14	NOT price (USD per pack)	0.87	0.56	0.43	0.23	0.64	0.45
15	Excise tax (USD per pack)	0.75	0.60	0.60	0.60	0.75	0.61
16	VAT (USD per pack)	0.26	0.19	0.17	0.13	0.26	0.17
17	Retail price (USD per pack)	1.87	1.34	1.20	0.96	1.87	1.24
18							
19	Binding excise tax (specific or ad valorem)	Ad valorem	Specific	Specific	Specific	Ad valorem	
20	Excise tax as % of retail price	40	45	50	62	40	50
21							
22	Cigarette consumption (million cigarettes)	263	606	3043	670	96	4678
23							
24	Excise revenue (million KES)	817	1505	7559	1665	298	11844
25	Industry revenue (million KES)	943	1396	5454	640	255	8688
26	Total Consumption Expenditure (million KES)	2042	3365	15096	2674	744	23921
27							
28	Excise revenue (million USD)	9.87	18.18	91.30	20.11	3.60	143.05
29	Industry revenue (million USD)	11.39	16.86	65.87	7.73	3.07	104.93
30	Total Consumption Expenditure (million USD)	24.66	40.64	182.31	32.30	8.99	288.90
31							
32 Percentage changes							
33	Excise tax (KES per pack)	26.7	57.7	102.8	107.0	26.7	91.7
34	Retail price (KES per pack)	10.9	23.4	41.7	59.6	10.9	38.4
35	Cigarette consumption (million cigarettes)	-6.0	-11.8	-18.8	-24.2	-6.0	-17.9
36	Excise revenue (million KES)	19.1	39.0	64.7	56.9	19.1	54.4
37	Industry revenue (million KES)	-6.0	-11.8	-18.8	-24.2	-6.0	-16.6
38	Total Consumption expenditure (million KES)	4.2	8.8	15.1	20.9	4.2	13.4

Table 2.2 Scenario 2: Tanzania

SIMULATION								
Line		Premium Brand	High Priced Brand	Medium Priced Brand	Low Priced Brand	Imported Premium Brand (non-EAC)	Imported Premium Brand (EAC)	Total or Average
Inputs								
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	2676	1928	1211	956	2405	2676	
3	Specific excise tax per pack USD				0.6			
4	Ad valorem excise rate on RSP	40%	40%	40%		40%	40%	
5	VAT rate	18%	18%	18%	18%	18%	18%	
6	Perc. Change in NOT price	0	0	0	0	0	0	
7								
Outputs								
9	NOT price (TZS per pack)	3002	2154	1353	683	1991	2687	1336
10	Excise tax (TZS per pack)	2676	1928	1211	956	2405	2405	1249
11	VAT (TZS per pack)	1022	735	462	295	917	917	466
12	Retail price (TZS per pack)	6700	4816	3026	1934	6010	6010	3056
13								
14	NOT price (USD per pack)	1.88	1.35	0.85	0.43	1.25	1.69	0.84
15	Excise tax (USD per pack)	1.68	1.21	0.76	0.60	1.51	1.51	0.78
16	VAT (USD per pack)	0.64	0.46	0.29	0.19	0.58	0.58	0.29
17	Retail price (USD per pack)	4.21	3.02	1.90	1.21	3.77	3.77	1.92
18								
19	Binding excise tax (specific or ad valorem)	Ad valorem	Ad valorem	Ad valorem	Specific	Ad valorem	Ad valorem	
20	Excise tax as % of retail price	40	40	40	49	40	40	41
21								
22	Cigarette consumption (million cigarettes)	44	263	3290	611	33	22	4264
23								
24	Excise revenue (million TZS)	5912	25389	199166	29190	3965	2643	266266
25	Industry revenue (million TZS)	6631	28374	222632	20867	3282	2953	284740
26	Total Consumption Expenditure (million TZS)	14802	63441	497721	59068	9907	6604	651542
27								
28	Excise revenue (million USD)	3.71	15.94	125.03	18.32	2.49	1.66	167.15
29	Industry revenue (million USD)	4.16	17.81	139.76	13.10	2.06	1.85	178.74
30	Total Consumption Expenditure (million USD)	9.29	39.82	312.44	37.08	6.22	4.15	409.00
31								
Percentage changes								
33	Excise tax (TZS per pack)	589.4	396.5	211.9	482.1	242.5	242.5	266.3
34	Retail price (TZS per pack)	67.5	60.5	47.2	93.4	50.2	50.2	53.7
35	Cigarette consumption (million cigarettes)	-26.3	-24.5	-20.6	-32.1	-21.5	-21.5	-22.8
36	Excise revenue (million TZS)	408.1	275.0	147.7	295.4	168.8	168.8	171.2
37	Industry revenue (million TZS)	-26.3	-24.5	-20.6	-32.1	-21.5	-21.5	-22.1
38	Total Consumption expenditure (million TZS)	23.4	21.3	16.9	31.4	17.9	17.9	18.7

Table 2.3 Scenario 2: Uganda

SIMULATION							
Line		Imported Premium Brand (KE)	Imported High Priced Brand (KE)	Imported Medium Priced Brand (KE)	Imported Low Priced Brand (KE)	Imported Low Priced Brand (TZ)	Total or Average
Inputs							
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	2051	1445	1383	1383	1383	
3	Specific excise tax per pack USD			0.6	0.6	0.6	
4	Ad valorem excise rate on RSP	40%	40%				
5	VAT rate	18%	18%	18%	18%	18%	
6	Perc. Change in NOT price	0	0	0	0	0	
7							
Outputs							
9	NOT price (UGS per pack)	2290	1619	1195	771	1619	1172
10	Excise tax (UGS per pack)	2051	1445	1383	1383	1383	1394
11	VAT (UGS per pack)	781	551	464	388	540	462
12	Retail price (UGS per pack)	5123	3615	3042	2542	3542	3028
13							
14	NOT price (USD per pack)	0.99	0.70	0.52	0.33	0.70	0.51
15	Excise tax (USD per pack)	0.89	0.63	0.60	0.60	0.60	0.60
16	VAT (USD per pack)	0.34	0.24	0.20	0.17	0.23	0.20
17	Retail price (USD per pack)	2.22	1.57	1.32	1.10	1.54	1.31
18							
19	Binding excise tax (specific or ad valorem)	Ad valorem	Ad valorem	Specific	Specific	Specific	
20	Excise tax as % of retail price	40	40	45	54	39	46
21							
22	Cigarette consumption (million cigarettes)	8	44	541	114	11	718
23							
24	Excise revenue (million UGS)	809	3181	37437	7866	730	50024
25	Industry revenue (million UGS)	903	3563	32346	4386	855	42053
26	Total Consumption Expenditure (million UGS)	2019	7958	82345	14458	1871	108650
27							
28	Excise revenue (million USD)	0.35	1.38	16.24	3.41	0.32	21.70
29	Industry revenue (million USD)	0.39	1.55	14.03	1.90	0.37	18.24
30	Total Consumption Expenditure (million USD)	0.88	3.45	35.72	6.27	0.81	47.14
31							
Percentage changes							
33	Excise tax (UGS per pack)	86.5	189.0	176.6	176.6	176.6	176.4
34	Retail price (UGS per pack)	28.1	44.6	52.1	69.5	41.7	54.0
35	Cigarette consumption (million cigarettes)	-13.8	-19.7	-22.1	-26.8	-18.8	-22.6
36	Excise revenue (million UGS)	60.8	132.0	115.6	102.5	124.7	113.3
37	Industry revenue (million UGS)	-13.8	-19.7	-22.1	-26.8	-18.8	-22.2
38	Total Consumption expenditure (million UGS)	10.5	16.1	18.5	24.1	15.1	18.8

Table 2.4 Scenario 2: Burundi

		SIMULATION						
Line		Premium Brand	High Priced Brand	Medium Priced Brand	Low Priced Brand	Imported Premium (non-EAC)	Imported Premium (EAC)	Total or Average
Inputs								
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Specific excise tax per pack local currency	2024	779	779	779	2273	779	
3	Specific excise tax per pack USD		0.6	0.6	0.6		0.6	
4	Ad valorem excise rate of RSP	40%				40%		
5	VAT rate	18%	18%	18%	18%	18%	18%	
6	Perc. Change in NOT price	0	0	0	0	0	0	
7	Retail & Wholesale margin (% on EW)	100	100	100	100	100	100	
8								
9 Outputs								
10	NOT price (BIF per pack)	2260	734	452	282	2119	734	487
11	Excise tax (BIF per pack)	2024	779	779	779	2273	779	796
12	VAT (BIF per pack)	771	272	222	191	867	272	231
13	Retail price (BIF per pack)	5055	1786	1453	1253	5682	1786	1513
14								
15	NOT price (USD per pack)	1.74	0.57	0.35	0.22	1.63	0.57	0.37
16	Excise tax (USD per pack)	1.56	0.60	0.60	0.60	1.75	0.60	0.61
17	VAT (USD per pack)	0.59	0.21	0.17	0.15	0.67	0.21	0.18
18	Retail price (USD per pack)	3.89	1.38	1.12	0.96	4.37	1.38	1.16
19								
20	Binding excise tax (specific or ad valorem)	Ad valorem	Specific	Specific	Specific	Ad valorem	Specific	
21	Excise tax as % of retail price	40	44	54	62	40	44	
22								
23	Cigarette consumption (million cigarettes)	4	25	251	46	0	16	342
24								
25	Excise revenue (million BIF)	455	970	9796	1784	1	612	13617
26	Industry revenue (million BIF)	508	914	5681	646	1	577	8326
27	Total Consumption Expenditure (million BIF)	1136	2223	18262	2867	2	1403	25893
29								
30	Excise revenue (million USD)	0.35	0.75	7.54	1.37	0.00	0.47	10.48
31	Industry revenue (million USD)	0.39	0.70	4.37	0.50	0.00	0.44	6.41
32	Total Consumption Expenditure (million USD)	0.87	1.71	14.06	2.21	0.00	1.08	19.93
33								
34 Percentage changes								
35	Excise tax (BIF per pack)	79.1	112.2	244.9	451.8	114.6	112.2	254.6
36	Retail price (BIF per pack)	26.4	37.4	81.6	150.6	42.1	37.4	81.3
37	Cigarette consumption (million cigarettes)	-13.1	-17.3	-29.6	-41.0	-18.9	-17.3	-30.0
38	Excise revenue (million BIF)	55.7	75.6	142.7	225.7	74.1	75.6	135.7
39	Industry revenue (million BIF)	-13.1	-17.3	-29.6	-41.0	-18.9	-17.3	-27.9
40	Total Consumption expenditure (million BIF)	9.9	13.7	27.8	47.9	15.2	13.7	26.6

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Table 2.5 Scenario 2: Rwanda

		SIMULATION					
Line		Imported Premium Brand (KE)	Imported High Priced Brand (KE)	Imported Medium Priced Brand (KE)	Imported Low Priced Brand (KE)	Imported High Priced Brand (BU)	Total or Average
Inputs							
1	Price elasticity	-0.6	-0.6	-0.6	-0.6	-0.6	
2	Excise tax per pack local currency	521	455	357	357	455	
3	Specific Excise tax per pack USD			0.6	0.6		
4	Ad valorem excise rate of RSP	40%	40%			40%	
5	VAT rate	18%	18%	18%	18%	18%	
6	Perc. Change in NOT price	0	0	0	0	0	
7	Retail & Wholesale margin (% on EW)	100	100	100	100	100	
8							
9 Outputs							
10	NOT price (RWF per pack)	581	508	242	145	508	257
11	Excise tax (RWF per pack)	521	455	357	357	455	368
12	VAT (RWF per pack)	198	173	108	90	173	112
13	Retail price (RWF per pack)	1300	1137	707	593	1137	737
14							
15	NOT price (USD per pack)	0.98	0.85	0.41	0.24	0.85	0.43
16	Excise tax (USD per pack)	0.88	0.77	0.60	0.60	0.77	0.62
17	VAT (USD per pack)	0.33	0.29	0.18	0.15	0.29	0.19
18	Retail price (USD per pack)	2.18	1.91	1.19	1.00	1.91	1.24
19							
20	Binding excise tax (specific or ad valorem)	Ad valorem	Ad valorem	Specific	Specific	Ad valorem	
21	Excise tax as % of retail price	40	40	50	60	40	51
22							
23	Cigarette consumption (million packs)	3	17	170	30	3	222
24							
25	Excise revenue (million RWF)	75	381	3026	542	60	4084
26	Industry revenue (million RWF)	84	425	2052	221	67	2849
27	Total Consumption Expenditure (million RWF)	187	951	5993	900	150	8181
28							
29	Excise revenue (million USD)	0.13	0.64	5.09	0.91	0.10	6.86
30	Industry revenue (million USD)	0.14	0.71	3.45	0.37	0.11	4.79
31	Total Consumption Expenditure (million USD)	0.31	1.60	10.07	1.51	0.25	13.75
32							
33 Percentage changes							
34	Excise tax (RWF per pack)	19.5	19.4	96.6	227.6	19.4	106.8
35	Retail price (RWF per pack)	8.3	8.3	41.4	97.6	8.3	45.8
36	Cigarette consumption (million cigarettes)	-4.7	-4.7	-18.7	-32.9	-4.7	-19.8
37	Excise revenue (million RWF)	13.9	13.8	59.9	119.9	13.8	57.6
38	Industry revenue (million RWF)	-4.7	-4.7	-18.7	-32.9	-4.7	-17.6
39	Total Consumption expenditure (million RWF)	3.3	3.2	15.0	32.6	3.2	14.6

List of Abbreviations

Tobacco Control	TC
Ministry of Health	MoH
Ministry of Finance	MoF
East African Community	EAC
World Health Organisation	WHO
Framework Convention on Tobacco Control	FCTC
price elasticity of demand	ϵ_p
International Agency for Research on Cancer	IARC
United Nations	UN
low or middle income countries	LMIC
low-income countries	LICs
Common Market for Eastern and Southern Africa	COMESA
Southern African Development Community	SADC
Tobacco Products Regulation Act of 2003	TPRA
Ugandan Tobacco Control Bill	UTCB
Demographic and Health Surveys	DHS
American Cancer Society	ACS
Economic Research Council	ERC
Global Youth Tobacco Survey	GYTS
Gross Domestic Product	GDP
Net of Tax	NOT
Retail Selling Price	RSP
Institute for Legislative Affairs	ILA
Value Added Tax	VAT
Consumer Price Index	CPI

Most Popular Price Category	MPPC
European Union	EU
Cost Insurance Freight	CIF
British American Tobacco	BAT
Legacy Tobacco Documents Library	LTDL
Jerusalem Cigarette Company Ltd.	JCC
Monopolies and Pricing Commission	MPC
Retail Wholesale Margin	RWM
Memorandum of Understanding	MoU

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